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PRELIMINARY ASSESSMENT REPORT

Doyle, Frank J.

EPA ID NO. TXD980865109

LEONARD, FANNIN COUNTY, TEXAS

May 1997

Prepared for:

Environmental Protection Agency

Dallas, TX

Fluor Daniel, Inc.
Submitted by:

for Wendy Bigley
Project Geologist

Fluor Daniel, Inc.
Approved by:

Bill Park
Project Manager

9989835

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1.0 INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), the U.S. Environmental Protection Agency (EPA), Waste Management Division, Region 6 conducted a Preliminary Assessment (PA) at the Doyle, Frank J. site in Leonard, Fannin County, Texas. The purpose of this investigation was to collect information concerning conditions at the site sufficient to assess the threat posed to human health and the environment and to determine the need for additional CERCLA/SARA or other appropriate action. The scope of the investigation included review of available file information, a comprehensive target survey, and an onsite reconnaissance.

2.0 SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS

2.1 Site Description

The Doyle, Frank J. site, hereafter referred to as the Frank J.Doyle Transformer site is located at (b) (6) (b) (6) in a predominately residential area of Leonard, Fannin County, Texas (Figure 1- Site Location Map). The geographical coordinates are 33° 23' 23" North latitude and 96° 14' 34" West longitude (Figure 1). To reach the site from Dallas, travel north on Hwy 78, turn west on Hackberry Street, then north on Poplar Street. The site is located on the corner of Poplar and Cottonwood. The site is bound on the north, south, and west by residential homes and the Leonard High School to the east (Figure 2- Site Sketch).

Frank J. Doyle Transformer site is approximately 0.6 acres in size (Figure 2). There is one shop building located on site. The shop houses two draining tables used to drain residual oil out of transformers. The yard of the site consists of a cement drive and gravel ground cover. In the southwest corner of the site is a concrete pad that is used to store 55 gallon drums and three (two 500 gallon and one 375 gallon) tanks located inside a concrete containment area. The used oil storage area is also the point where the used oil is vacuumed out via a vacuum truck and hauled off site for disposal. The gravel yard consists of storage for various sizes of transformers. The yard also contains a twenty yard dumpster that stores general shop refuse. The site is completely surrounded by a wooden fence. There are three gates that lead onto the property located on the north, east and west sides (Figure 2). The gates are secured and locked after business hours.

A site reconnaissance was conducted by Fluor Daniel on May 20, 1997. This site is currently active and

is bordered by residential properties to the north, south and west, and Leonard High School to the east (Figure 2). The owner, Mr. Frank J. Doyle, retired in January 1997 and (b) (6) currently operates the business. The site reconnaissance revealed evidence of soil contamination with yellowish/green staining of the soil (Photos #7 & 8). In addition to the staining on the ground, the area around the shop showed signs of deterioration and staining (Photo #8). The site is located on relatively flat terrain that slopes gently toward the northeast boundary (Figure 1).

2.2 Operational History

Frank J. Doyle Transformer is currently active and has been in operation since approximately 1974. Mr. Doyle obtains transformers from companies in Texas, Oklahoma, Louisiana and Arkansas. Salvage operations involve recovering oil, wiring and scrap metal from the transformers. Before salvage operations begin, the used oil is pumped out of the transformers and placed in a storage tank located in the southwest corner of the property. The transformer is then placed on a draining table to allow any residual oil to displace. The remaining oil is placed in 55 gallon drums which are stored on a concrete pad also located in the southwest corner of the property. From the late 1970's to early 1980's, the site only accepted non-Polychlorinated Biphenyls (PCB) transformers [Reference 1, pg. 1]. Prior to that, Mr. Doyle used transformer oil for weed control and has distributed the oil to various individuals throughout Leonard for use as a weed killer [Reference 2, pg. 3].

Mr. Frank J. Doyle registered with the Texas Water Commission (TWC) now called the Texas Natural Resources Conservation Commission (TNRCC) in 1993 for various non-hazardous waste generated on site such as; 1.) used oil from non-PCB transformer being scrapped for salvage, 2.) ash residue from furnace used to remove varnish from copper wire, 3.) general plant refuse from office and shop, 4.) various storage containers for used oil including one 375 gallon, two 500 gallon and 55 gallon drums that are stored on a concrete pad located on the southwest corner of the property (Photos # 11&13), 5.) high temperature oven to burn varnish off copper and 6.) a four yard dumpster for the accumulation of plant trash (Photo #15). The registration reflects hazardous and/or industrial waste generated and management activities for which Mr. Doyle has provided notification [Reference 3, pp. 2-25].

2.3 Waste Characterization

Past site inspections of Frank J. Doyle Transformer include a Site Assessment sampling investigation conducted by the Ecology & Environment's Technical Assistant Team (TAT) on October 12, 1990 and

April 19, 1991 and two EPA PCB inspections conducted on July 20, 1990 and September 7, 1994. Under the supervision of the EPA, Mr. Doyle's contractor, Worldwide Reclamation conducted surface and subsurface soil sampling on May 23 and 24, 1995 [Reference 2, pg. 3]. An effort was made to obtain these reports and analytical data pertaining to these sampling events but to date attempts have been unsuccessful.

On July 10, 1995 TAT collected 68 surface and subsurface soil samples. The samples were collected from 24 locations outside of the facility on the west, south and east sides to determine the presence and/or extent of PCB contamination [Reference 2, pg. 2].

Mr. Frank J. Doyle's house is the nearest residence and is located just west of the site. On July 12, 1995 TAT collected soil samples from the Doyle's residence just outside the perimeter of the fence of the salvage yard. The laboratory results indicate that the highest concentration of PCB's in the Doyle's yard was 10.44 parts per million (ppm) for Aroclor 1260 . This location was marked as RO7 and is located southwest of the gate that leads from the salvage yard to the Doyle's residence (Reference 3 and Figure 3- Sample Results Map). The residence located south of Frank J. Doyle Transformer was also sampled. The laboratory results showed that the highest concentration of Aroclor 1260 in the 0-6 inch sample interval was 27.9 ppm. This location was labeled as RO1 and was collected directly across from the outside storage area for the transformer waiting to be salvaged. At the same residence, surface soil samples were collected in the northeast corner of the property. These samples were southeast of the transformer storage area and revealed the highest Aroclor 1260 concentration of 37.7 ppm [Reference 2. Pp. 5-32].

Soil samples were also collected in the alleyway between the site and the residence. Sample AO1 had the highest Aroclor 1260 concentration of 5.7 ppm in the 0-6 inch interval and 48.2 ppm for the 12-18 inch interval. Sample AO2 had the highest Aroclor 1260 concentration of 852 ppm at the 6-12 inch interval and a concentration of 115 ppm for 18-24 inch interval. Both of these sample locations are located across the outside storage area for the transformers and down gradient from the site (Figure 3-Sample Results Map).

The highest concentration of Aroclor 1260 found on site was 1590 ppm. It was a grab surface soil sample collected near the gate located on the east side of the property. Another grab surface soil sample was

collected just outside the east gate with a concentration of Aroclor 1260 of 2730 ppm. This location is outside the fenced perimeter of the site and is assessable to the public. A grab soil sample was also collected at the location of the culvert and the analytical results showed the third highest concentration of PCB Aroclor 1260 with a 50.9 ppm concentration (Figure 3).

3.0 GROUND WATER PATHWAY

3.1 Hydrogeologic Setting

Fannin County lies along the physiographic boundary between the Grand Prairie (to the west) and the Black Prairie (to the east) [Reference 4, pg. 4]. Geologically this area is characterized by transgressive and regressive outcrops of formations. The Austin group from Upper Cretaceous deposits outcrops in Fannin County. Underlying the Austin Chalk is the Eagle Ford Shale Formation (300-400 feet thick) and then the Woodbine Formation, these formations are primarily composed of limestones, shales and sandstones respectively.

The Woodbine Formation is the primary water supply in the area of Frank J. Doyle Transformer site and is considered a minor aquifer by the state of Texas. The depth to water in the Woodbine ranges from 432-449 feet below land surface (bls) in Fannin County [Reference 5, pp. 6-9].

3.2 Ground Water Targets

There are three wells within a one mile radius of the site. Two of the three wells (701 and 702) are used for public drinking water supply. The third well (9B) is a private well and is approximately 0.75 miles to the northwest of the site [Reference 5, pg. 2].

The city of Leonard obtains its water from two wells (701 and 702) which are completed in the Woodbine Aquifer. Well 701 is located on the corner of (b) (9) [redacted] which is approximately 0.2 miles southwest of the site and well 207 is approximately 0.75 miles northwest of the site [Reference 5, pg. 2]. According to the well logs, the Austin Chalk was encountered at 2 feet bls, the average depth of the screened interval is 1464 bls and the total average depth of the two wells is 1697 feet bls [Reference 5, pp. 7-17]. During the site reconnaissance it was learned that the two wells are both pumped into a single underground holding tank therefore creating a blended system [Reference 6, pg. 1]. A Texas Department of Health water analysis was obtained for the two wells 701 and 702. The laboratory analysis

revealed that as of March 17, 1995 the city's water was not tested for PCB [Reference 7, pg. 2].

In order to apportion the population of Leonard using the city water system, the total population of Leonard within a one mile radius of the site (1503 people) was distributed evenly between the two wells that supply drinking water to the systems [Reference 8, pg. 1]. One well (701) is located within a quarter mile radius of the site [Reference 5, pg. 2]. Therefore, half the population of Leonard (753 people) are attributed to the use of well 701. The other well that comprises the blended system is located within the quarter mile to half mile radius of the site. A private well is located within the half mile to one mile radius of the site. Therefore, one residential home is assumed to use this well as a source for drinking water. The number of people in that home is estimated at 3 people using the population density factor of 2.48 for Fannin county [Reference 9, pg.2].

The number of domestic wells located outside of the one-mile distance was undetermined. Therefore, the number of people using the water outside of the one mile radius of the site was determined by counting the number of homes located on the topographic map (Figure 4- Four mile Radius Map). The number of homes located from the one to four mile distance categories were multiplied by the population density factor of 2.48 persons/household for Fannin county [Reference 9, pg. 2]. The following table lists the number of domestic and public well water users within each distance category.

Distance from site (mi)	Number of people using ground water
0-¼	752
¼-½	751
½-1	3
1-2	233
2-3	215
3-4	253

3.3 Ground Water Conclusions

A release of PCB's into the groundwater is not suspected because the blended system of drinking water for the city of Leonard was analyzed on March 17, 1995 for various hazardous substances by the Texas

Health Department. However, this analysis contains no results for the PCB compounds. The two wells that comprise the blended system are properly installed and securely cemented to the slotted screen which is at an average depth of 1464 feet bls. Due to the low permeability of the underlying formations at the site, the depth of water at each of the public supply wells and the fact that PCB's are relatively insoluble in water and not likely be mobilized, it is not likely that PCB's could contaminate the ground water supply of the City of Leonard.

4.0 SURFACE WATER PATHWAY

4.1 Hydrogeologic Setting

A drainage ditch is located along the western boundary of the site. During the site reconnaissance it was observed that a culvert was located just north of the main gate of the Doyle Transformer property. Inside the fence there was a low lying area where surface run-off from the site flows into a culvert that drains into the drainage ditch that is located along the western fence of the property (Photo #6). An engineer from Hayden Engineers, the company used design the storm sewer system for the city of Leonard, stated that the city has few storm sewers and the majority of the city's runoff is directed out of the city via drainage ditches [Reference 10, pg. 1]. Some of the runoff is directed south and the rest is directed west out of the city. Approximately 0.5 miles southwest of the site lies Boney Creek, which is a small tributary of Lee Creek. Boney Creek is an intermittent creek which is approximately one mile long and drains into Lee Creek . Lee Creek is also intermittent and is approximately four miles long. Other creeks located within a two mile radius of the site are Arnold Creek and Sulphur Creek. Arnold Creek is approximately 1.5 miles south and Sulphur Creek is located one mile east of the site. These creeks are both intermittent (Figure 4-Four Mile Radius Map).

4.2 Surface Water Targets

Based on the site reconnaisanace and review of the topographic maps no wetlands were identified within a four mile radius of the site. During the site reconnaissance and confirmation of the topographic map, there are no signs of a perennial stream within the 2 mile downstream distance of the site. The topographic map confirms that the nearest stream, Boney Creek is an intermittent stream. By definition of an intermittent stream, Boney Creek does not have enough water capacity be a source of recreation or a

source for drinking water. Since there were no perennial surface waters identified within the two mile downstream distance, no surface water targets were identified.

4.3 Surface Water Conclusions

The only drainage observed onsite was from a drainage ditch located on the western boundary of the property. During the site reconnaissance, there were no creeks or wetlands observed within a 2 mile downstream distance of the site. The topographic map of the area confirms that Boney Creek, located 0.5 miles southwest of the site is an intermittent stream. Since there are no perennial streams within a two mile downstream distance of the site, a threat human health and the environment via the surface water pathway is not suspected.

5.0 SOIL EXPOSURE AND AIR PATHWAYS

5.1 Physical Conditions

The Frank J. Doyle Transformer site is completely fenced and has secured locks on all the gates. The ground cover consists of a mixture of gravel and concrete. The ground inside the shop and the entrance into the main gate is covered with concrete. The rest of the salvage yard is covered by gravel except for the concrete containment area located in the southwest corner of the property. The pad was used to store sixteen 55-gallon drums. Of the sixteen drums only one drum was labeled as "Non-PCB", the remaining drums were not labeled (Photo #3). The concrete pad showed signs of deterioration (Photo # 12). The pad is located adjacent to a concrete containment area that contains two 500 gallon storage tanks and one 375 gallon tank (Photos #10 & 11) Inside this concrete containment area, there was a rusted 55 gallon drum that was marked as corrosive (Photo #10). It was observed and later confirmed by Mr. Doyle that this was the location where waste oil from the transformers is stored prior removal (Photo #12). The used oil is vacuumed out of the holding tanks by a transportation company named Scroggins which is out of Oklahoma [Reference 11]. There was evidence of spilled or leaking oil near the concrete containment area on the day of the site reconnaissance and a yellowish/green staining along the fence line near the

disposal point (Photo #10). Prior environmental assessments that were conducted on and off-site have revealed PCB contamination in the soils. The laboratory results of the soil samples collected on and off-site are discussed in section 2.3.

5.2 Soil and Air Targets

Frank J. Doyle Transformer is underlain by the Fairie-Dalco soil association. This association is characterized by nearly gently sloping, moderately well drained, very slowly permeable clayey soils overlying chalky limestone [Ref. 14, pp. 1-7]. PCB's are known to be relatively insoluble in water and resistant to chemically breaking down. The Texas Natural Conservation Commission action level for all PCB compounds is 50 ppm [Reference 12, pg. 4].

During the site reconnaissance, (b) (6) stated that a maximum of three employees have worked on site since 1974. This does not include subcontractors such as truck drivers, delivery personnel and waste haulers. Leonard High School, which has approximately 225 students attend, is located less than 200 feet to the east. Adjacent to the High School is the Leonard Junior High School, which approximately 200 students attend. South of the Frank J. Doyle Transformer site within the quarter mile radius, lies an elementary school with an attendance of approximately 300 students [Reference 13, pg. 1]. On the day of the site reconnaissance, it was observed that there were numerous students of all ages walking along the alleyway, which lies adjacent the west fence boundary of the site. Earlier reports indicated that the Project Life Day Care facility was located south and adjacent of the site, however it was noted during the site reconnaissance that the day care is no longer in business and this facility is now a residence.

The number of people living within a four mile radius of the site was calculated by the population of the city of Leonard and the number of homes within that distance category. The population of the city of Leonard is estimated at 1503 [Reference 8]. The number of homes, was determined by a house count using the topographic map (Figure 4). The number of homes within the radius was then multiplied by the population density factor of 2.48 for Fannin County [Reference 9, pg. 2].

Distance from site (mi)	Number of Homes within the area	Number of people living within the area
0-¼	100	248
¼-½	90	223
½-1	133	330
1-2	94	233
2-3	87	215
3-4	102	253

5.3 Soil Exposure and Air Pathway Conclusions

Soil exposure appears to pose a threat at the Frank J. Doyle Transformer site because of the identified presence of PCB in the soil, the nearby residential population and a High School located within 200 feet. A release to the air can be suspected because the transformer site was registered with the state of Texas for ash residue from a furnace that was used to remove varnish from copper wire intended for salvage. However, on the day of the site reconnaissance there were no signs of airborne contaminants or debris. The ground cover is a mixture of gravel and concrete and void of vegetation. However, during the site reconnaissance, no odors were detected and there was no indication of blowing dust or soil.

6.0 SUMMARY

Mr. Frank J. Doyle has owned and operated Doyle Transformer Salvage from 1974 until January 1997 when (b) (6) took over the business operations. Mr. Frank J. Doyle stored used oil from the transformers in holding tanks and 55 gallon drums on a concrete pad prior to transport and disposal.

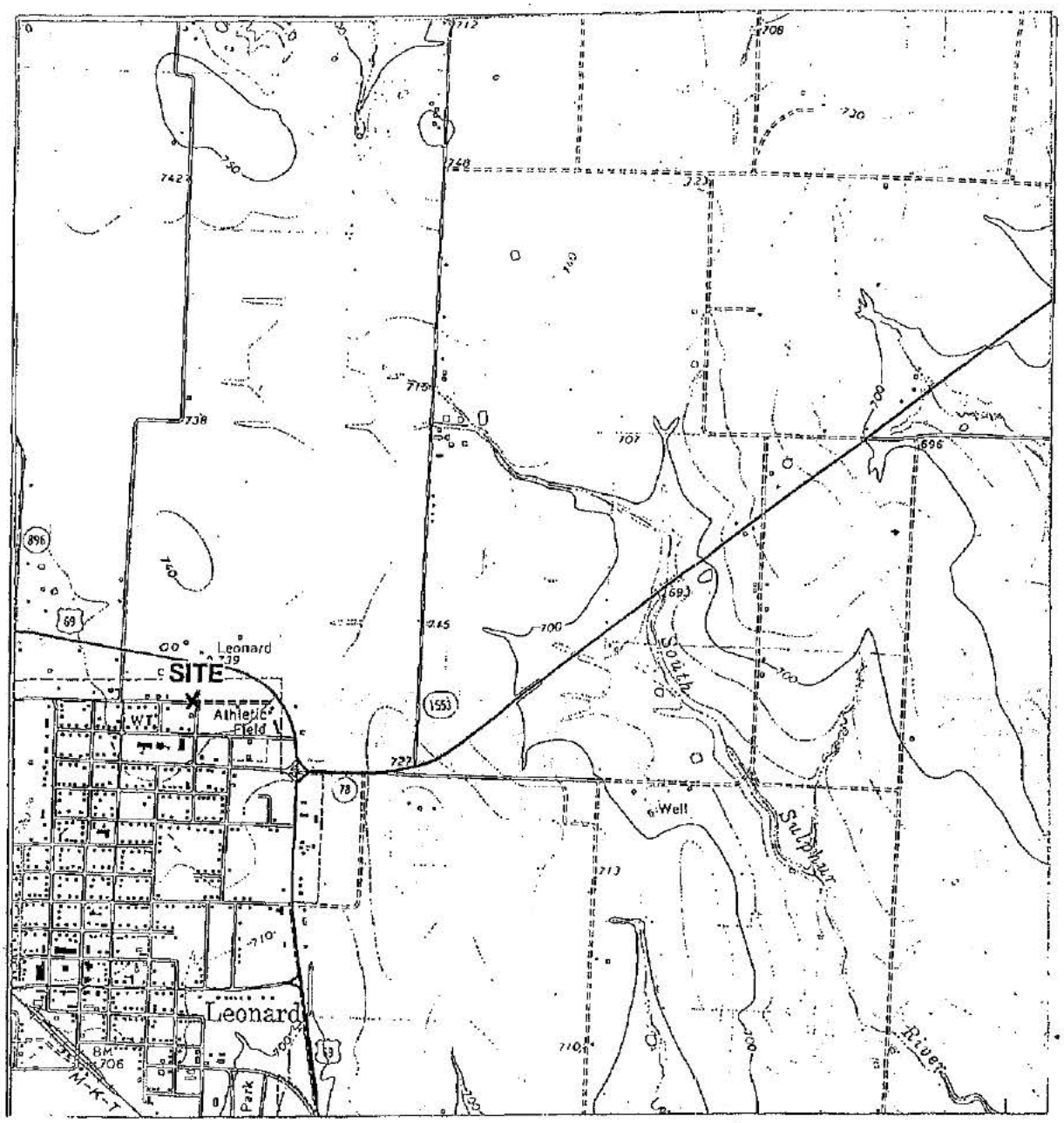
Reports on sampling inspections conducted by the TAT on October 12, 1990 and April 19, 1991, and by the EPA on July 20, 1990 and September 7, 1994 could not be obtained. However, TAT collected an additional 68 samples from both on and off-site locations. Detections of Aroclor 1260 at off-site residences showed concentrations ranging from 10.44 to 37.7 ppm. The analyses of soil samples collected in the alleyway between the site and the residence north of the site showed concentrations ranging from 5.7 to 852 ppm for Aroclor 1260. On-site analytical results indicate the presence of Aroclor 1260 at concentrations ranging from 50.9 to 2730 ppm.

A release of PCBs into the city of Leonard's drinking water via the two public wells near the site is not suspected due to the lithology of the underlying formations and the depth to water in the wells precluding contaminant migration. A perennial surface water body is not located within two miles of the site. Therefore, a threat to human health and the environment via the surface water migration pathway is not likely. Soil exposure appears to be the primary pathway of concern at the Frank J. Doyle Transformer site because of the already identified presence of PCB in the soil, the nearby residential population, and the nearby presence of three schools within 1/4 mile. A potential for a release via the air migration pathway is likely due to the presence of 248 people within 1/4 mile, lack of vegetative growth on or around the outer perimeter of the site, and the former registration of the site with the state of Texas for ash residue that was released from a furnace. This furnace was used to remove varnish from copper wire intended for salvage.

7.0 REFERENCES

1. Record of Telephone Conversation. From: Wendy B. Bigley, Fluor Daniel, Inc. To: Mr. Frank J. Doyle, Concerning: Non-PCB Transformer Date. June 3, 1997.
2. Ecology and Environment Site Assessment Report, Prepared for Doyle Transformer Salvage. August 31, 1995.
3. Texas Water Commission, Industrial Solid Waste Management Inventory Initial Notification, January 1, 1986.
4. Jordan, Terry G., Environment and Environmental Perceptions in Texas, American Press, Boston, Massachusetts, 1980.
5. Geosource Incorporated, Water Well Review for (b) (6) [redacted]. May 7, 1997.
6. Logbook of Field Activities. Prepared by: Wendy B. Bigley, Fluor Daniel, Doyle Transformer operations, TXD980865109, May 20, 1997.
7. Texas Department of Health, Bureau of Laboratories, laboratory data on blended drinking water, March 17, 1995.
8. Record of Telephone Conversation. From: Wendy B. Bigley, Fluor Daniel. To: City Clerk at Leonard City Hall. Concerning: Population of Leonard. May 28, 1997.
9. U.S. Bureau of Census. 12th Ed. County and City Data Book. 1994
10. Record of Telephone Conversation. From: Wendy B. Bigley, Fluor Daniel,Inc. To: Hayden Engineers. Concerning: Storm water drainage for the City of Leonard. May 28, 1997.
11. Texas Water Commission request for Texas Waste Code and Authorization for Shipment of waste. Not dated.
12. Texas Natural Resource Conservation Commission. Chapter 335. Industrial Solid Waste and Municipal Hazardous Waste. March 1996.
13. Record of Telephone Conversation. From: Wendy B. Bigley, Fluor Daniel, Inc. To: Leonard High School Secretary. Concerning: Attendance of Leonard schools. May 2, 1997.
14. U.S. Department of Agriculture, Natural Resources Conservation Service. Soil Survey Information, Not dated.

Figure 1
Site Location Map



Note:USGS 7.5' Topographic Map, Leonard, TX Quadrangle, 1964.

FLUOR DANIEL

FIGURE 1
SITE LOCATION MAP
Doyle, Frank J.
EPA ID No. TXD980865109
Leonard, Collin County, Texas

Figure 2

Site Sketch

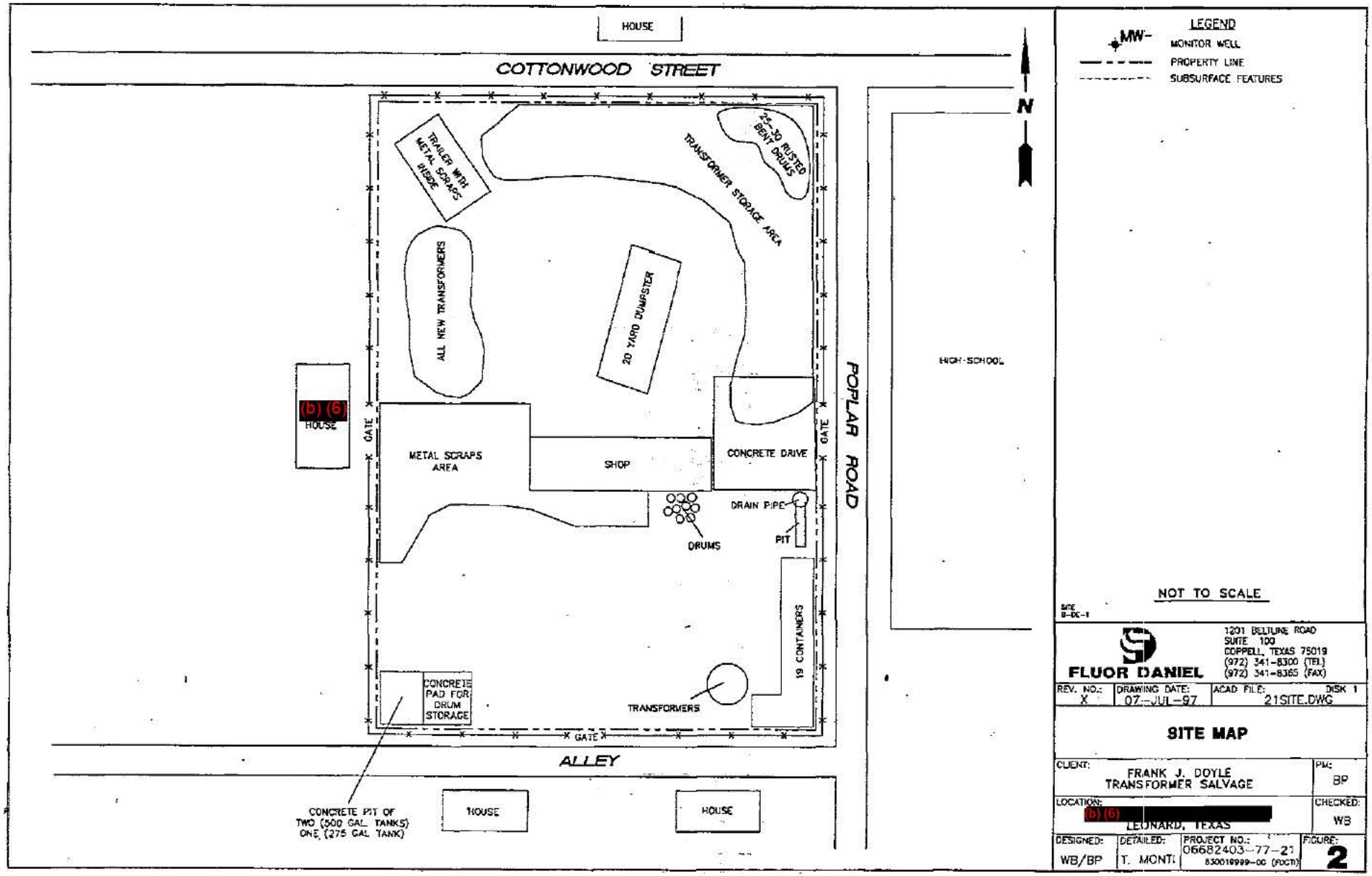
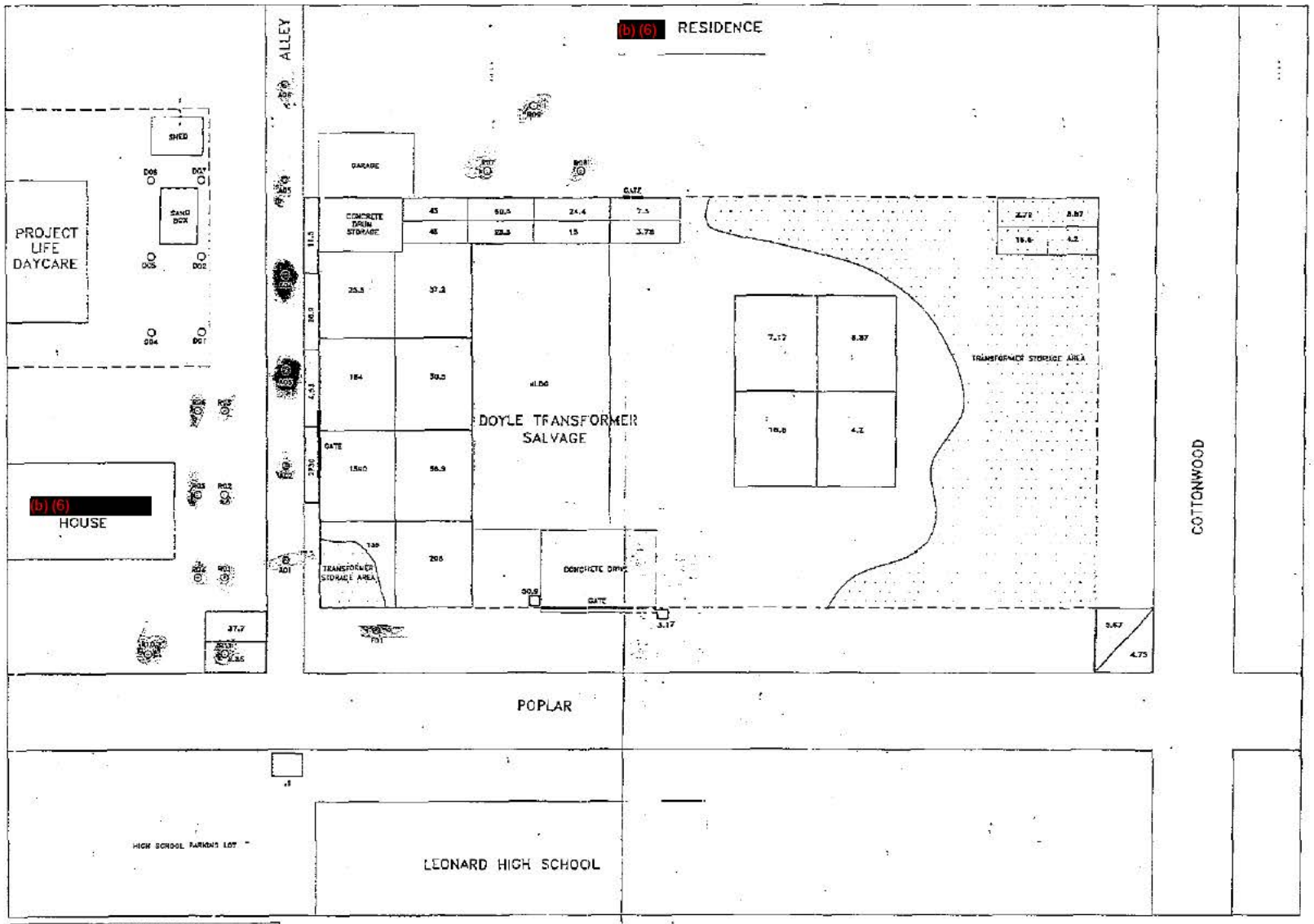

HOUSE
COTTONWOOD STREET
TRAILER WITH METAL SCRAPS INSIDE
25-30 RUSTED BENT DRUMS
TRANSFORMER STORAGE AREA
ALL NEW TRANSFORMERS
20 YARD DUMPSTER
N
HIGH SCHOOL
(b) (6)
HOUSE
GATE
METAL SCRAPS AREA
SHOP
CONCRETE DRIVE
GATE
POPLAR ROAD
DRAIN PIPE
PIT
DRUMS
19 CONTAINERS
CONCRETE PAD FOR DRUM STORAGE
TRANSFORMERS
GATE
ALLEY
CONCRETE PIT OF TWO (500 GAL. TANKS) ONE (275 GAL TANK)
HOUSE
HOUSE
LEGEND
MW
MONITOR WELL
PROPERTY LINE
SUBSURFACE FEATURES
NOT TO SCALE
SITE
B-DC-1
FLUOR DANIEL
1201 BELTLINE ROAD
SUITE 100
COPPELL, TEXAS 75019
(972) 341-8300 (TEL)
(972) 341-8365 (FAX)
REV. NO.: X
DRAWING DATE: 07-JUL-97
ACAD FILE: 21SITE.DWG
DISK 1
SITE MAP
CLIENT: FRANK J. DOYLE TRANSFORMER SALVAGE
PM: BP
LOCATION: (b) (6) LEONARD, TEXAS
CHECKED: WB
DESIGNED: WB/BP
DETAILED: T. MONTI
PROJECT NO.: 06682403-77-21
830018999-00 (FDCTI)
FIGURE: 2

Figure 3

Sample Location Map



TAT SAMPLE #	CONCENTRATIONS PCB (PPM) DEPTH (INCHES) 0-6	6-12	12-18	18-24
P01	2.98	14	4.81	ND
A01	5.7	74.60	48.2	ND
A02	1.67	852	22	118
A03	ND	69	ND	ND
A04	ND	8.54	ND	ND
A05	2.31	ND	ND	ND
A06	ND	7.35	ND	ND
R01	27.8	ND		
R02	3.79	ND		
R03	4.07	ND		
R04	3.62	ND		
R05	ND	ND		
R06	ND	ND		
R07	10.4	2.18		
R08	5.87	ND		
R09	2	ND		
R10	ND	ND		
R11	13.5	ND		

TAT SITE ASSESSMENT SAMPLES

- ⊘ 2 FT DEPTH SOIL SAMPLE
- ○ 1 FT DEPTH SOIL SAMPLE
- FENCE

5-23-95 WORLWIDE RECLAMATION SAMPLING GRAB AND PCB CONCENTRATIONS IN PPM

- ☐ GRAB SURFACE SOIL SAMPLE
- ☐ COMPOSITE SUBSURFACE SOIL SAMPLES COMBINED DEPTH FROM UPPERMOST DEPTH UNDER FILL MATERIAL TO 24 IN.

Figure 3- Sample Results Map

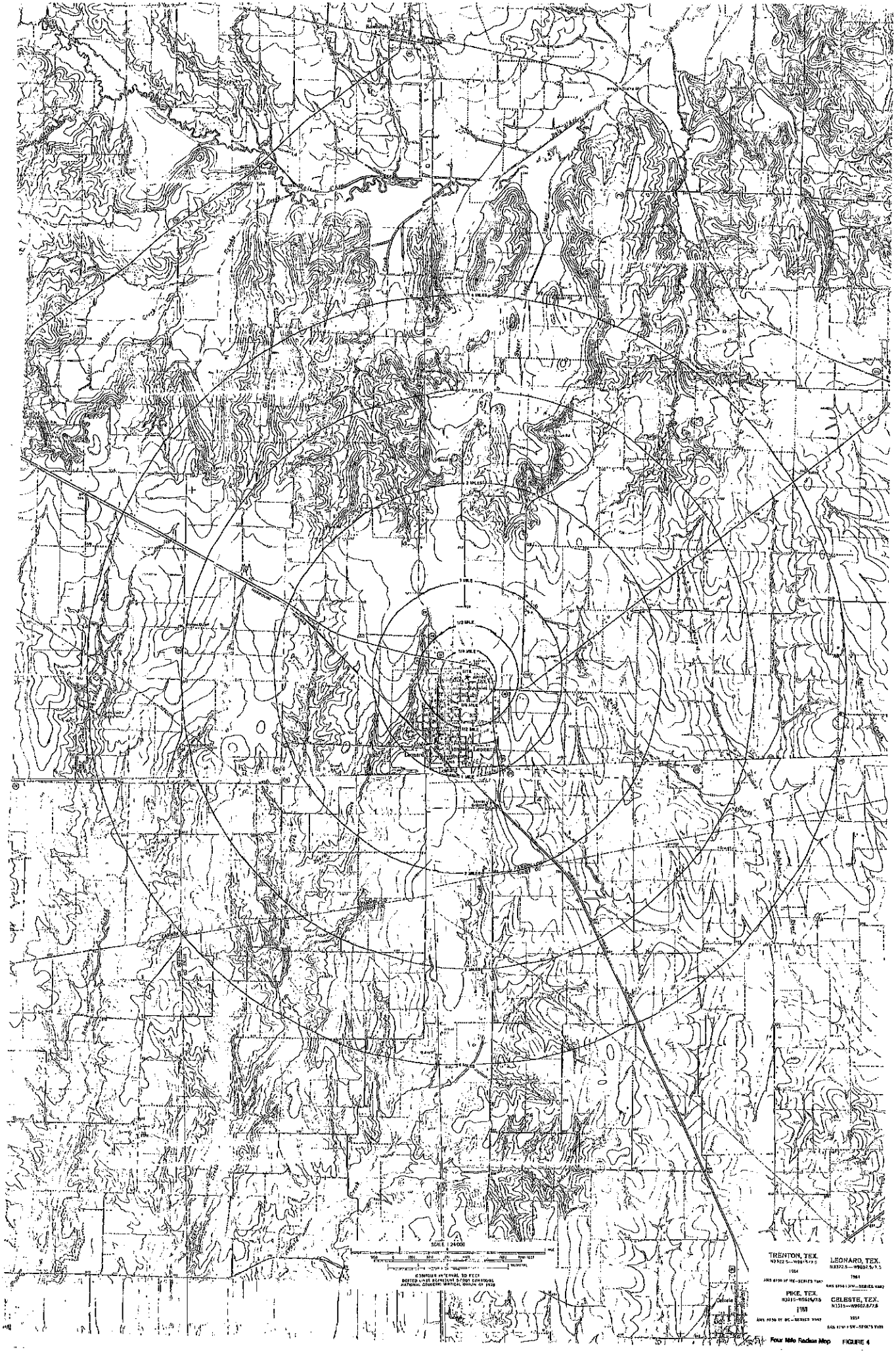
ecology and environment, inc.
Dallas, Texas
International Specialists in the Environment

SAMPLE RESULTS MAP
DOYLE TRANSFORMER SALVAGE
CERCLIS # TXD980865109

TDD# T06-9507-002 | Date: JULY 12, 1995
PAN# ETX1204SCA | P.M.: MELISSA STALLINGS

Figure 4

Four Mile Radius Map



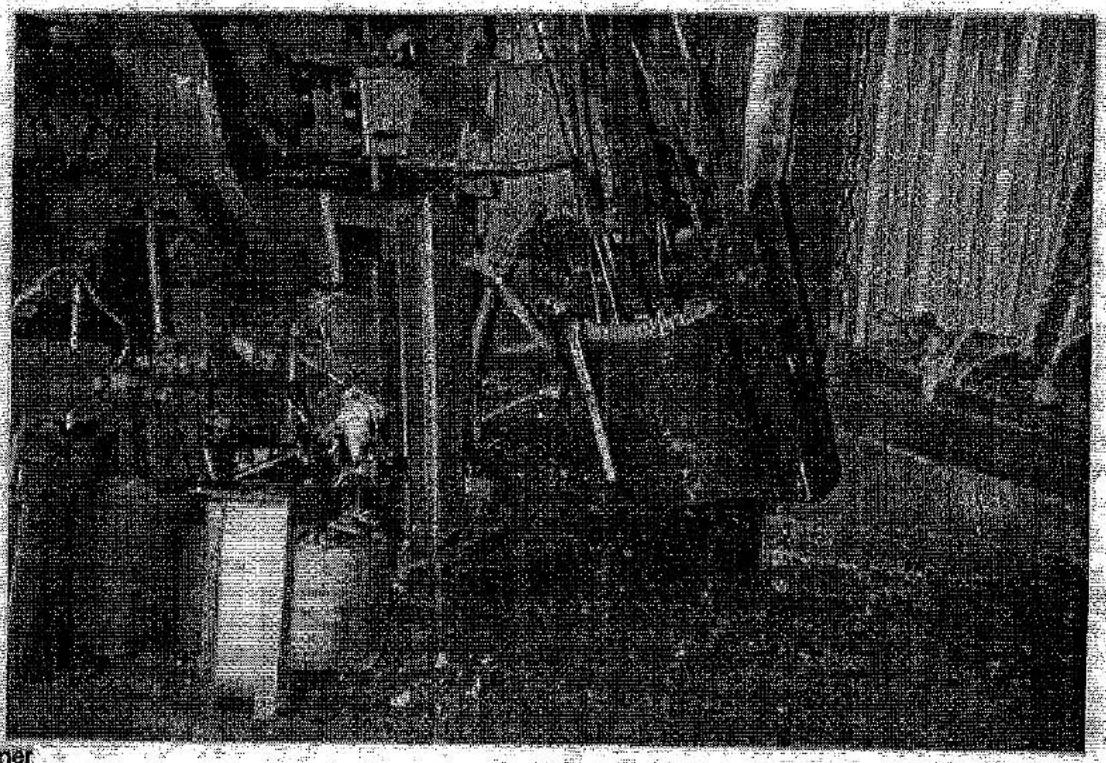
Four Mile Radius Map FIGURE 4

ATTACHMENT 1

PHOTOGRAPHIC DOCUMENTATION

Photo No.
3

Neg. No.
1



Site Name:
Frank J. Doyle Transformer

Location:
(b) (6)
Leonard, Texas

Project #
066824O3-72-13

Photographer/Witness W. Bigley/ K. Westberry

Date 5/20/97 Time 10:37 Direction North

Description The inside of the shop showing a draining table used to drain oil out of salvaged transformers.

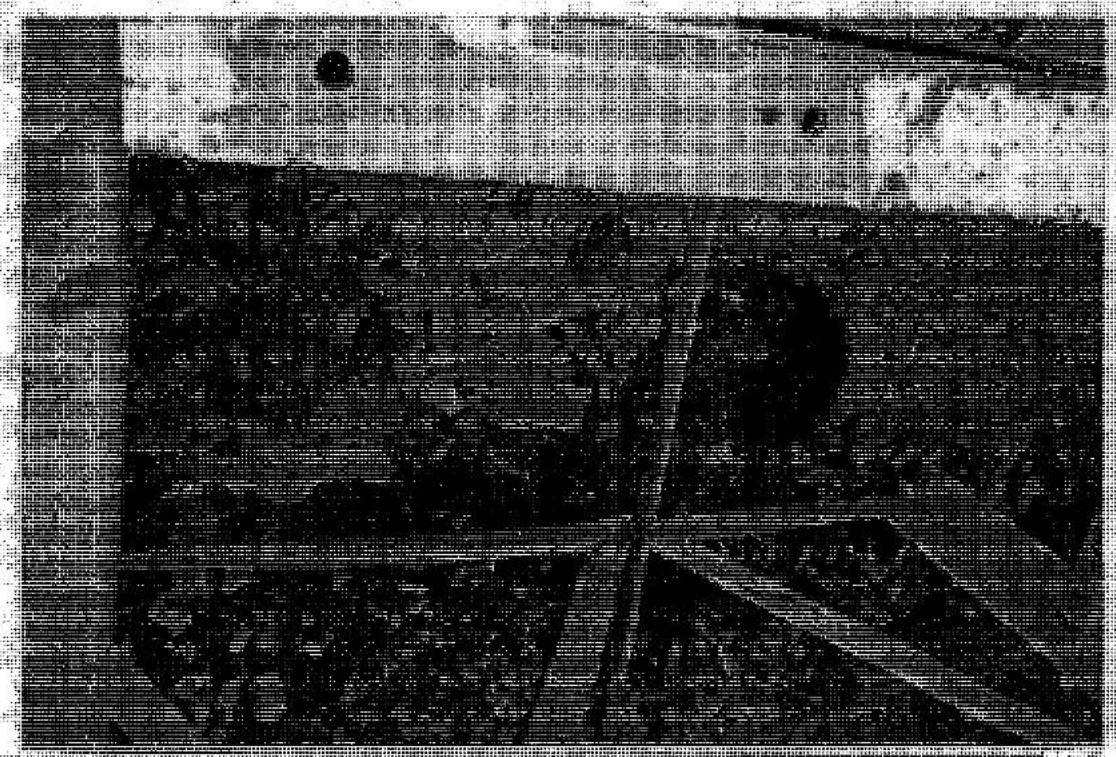


Photo No. 1

Req. No. 1

Site Name

Photographer/Witness

Location

Date

Time

Direction

Evidence #

Description

(b) (6)

Photo No. 2

Req. No. 2

Photographer/Witness

Date

Time

Direction

Description

Page 2 of 7

Photo No. 8
Neg. No. 6

Site Name:
Frank J. Doyle Transfor...

Photographer/Witness W. Bigley/ K. Westberry
Location
Date 5/20/97 Time 10:30 Direction
Description Yellowish/green staining on the ground located outside the shop.

(b) (6)
Leonard, Texas
Project #
06682403-77-13

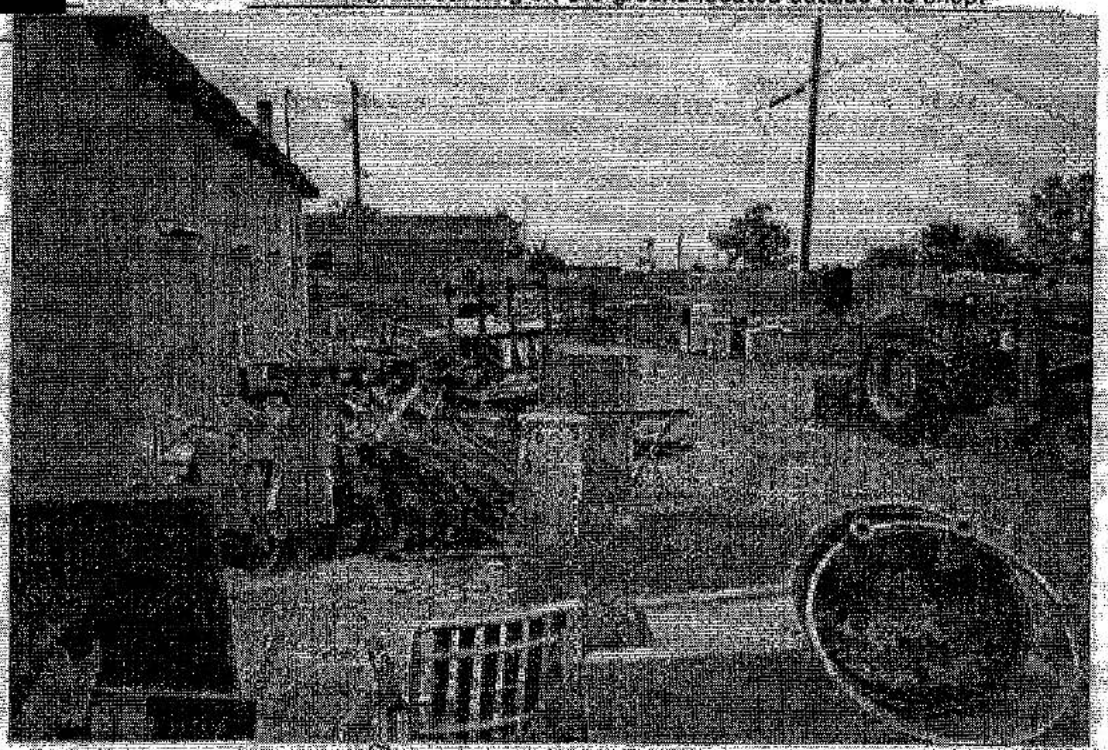


Photo No. 9
Neg. No. 7

Photographer/Witness W. Bigley/K. Westberry
Data 5/20/97 Time 10:30 Direction East
Description The south side of the shop. Soil staining was located near the debris pile.

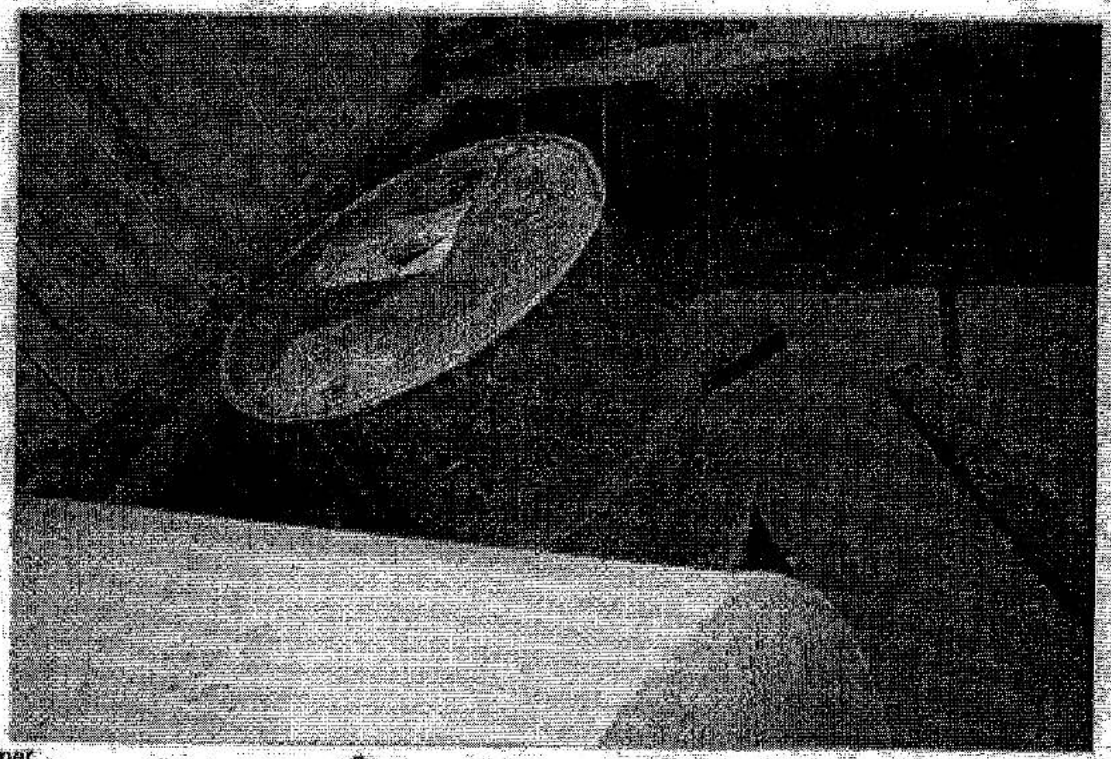


Photo No. 10

Neg. No. 8

Site Name:
Frank J. Doyle Transformer

Location:
(b) (6)
Leonard, Texas

Project #
06682403-77-13

Photographer/Witness W. Bigley/ K. Westberry

Date 5/20/97 Time 10:27 Direction Northwest

Description View of the drum marked as corrosive inside the tank pit holding area.

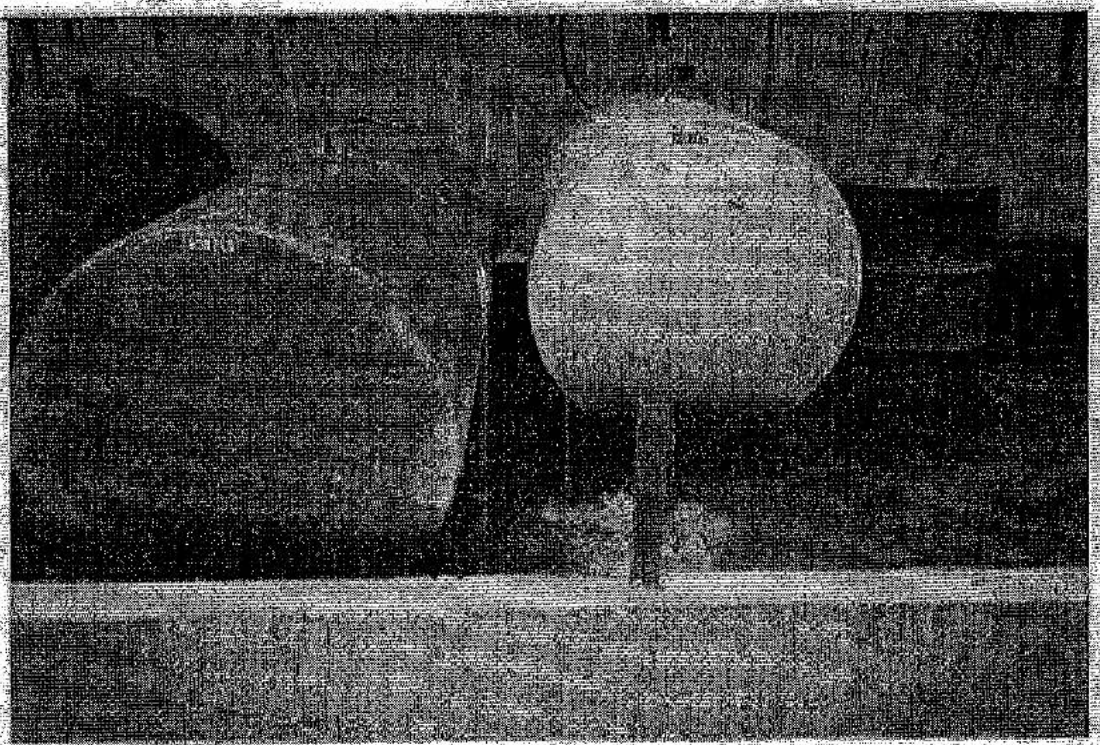


Photo No. 11

Neg. No. 9

Photographer/Witness W. Bigley/K. Westberry

Date 5/20/97 Time 10:26 Direction West

Description View of the tank hold area. Two 500 gallon and one 375 gallon storag tanks are inside a cement pit.

Photo No.
12
Neg. No.
10

Site Name: Frank J. Doyle Transformer

Location: (b) (6)

Project #: 06682403-77-13

Photographer/Witness W. Bigley/ K. Westberry

Date: 08/20/97 Time 10:25 Direction North

Description Waste oil containment structure. Also shown is the location of waste collection for off-site disposal.

Photo No. 13

Neg. No. 11

Site Name:
Frank J. Doyle Transformer

Location:
(b) (6)
Leonard, Texas

Project #
06682403-77-13

Photographer/Witness W. Bigley/ K. Westberry

Date 5/20/97 Time 10:25 Direction North

Description The southwest corner of the site. Location where sixteen 55 gallon drums are stored on a concrete pad.

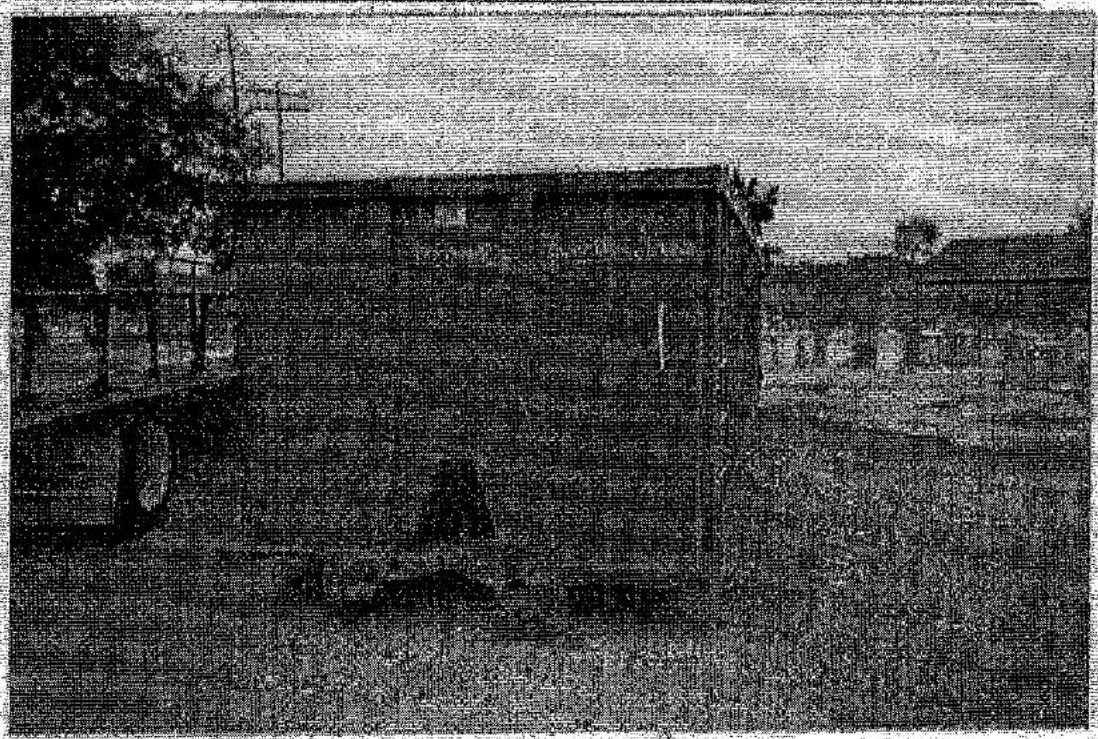


Photo No. 15

Neg. No. 13

Photographer/Witness W. Bigley/K. Westberry

Date 5/20/97 Time 10:20 Direction South

Description A 20 yard dumpster used to store general refuse.

Photo No. 16
Neg. No. 15

Site Name: Frank J. Doyle Transformer
Location: (b) (6)
Project #: 00682403-77-13

Photographer/Witness W. Bigley/ K. Westberry
Date: 05/20/97 **Time** 10:30 **Direction** East
Description View along the north side of the shop. Note the staining and the condition of the transformers.

SWR 80951

partial of pdf in 80951 on J drive
"Pages from Screening Site Inspection Report smaller firsthalf.pdf"
Ric Robertson 6/17/10
email

TNRCC

Protecting Texas by Reducing and Preventing Pollution

Screening Site Inspection Report

for

Doyle, Frank J. Transformer Site; aka: Frank J. Doyle Transformer
TXD980865109
Leonard, Fannin County, Texas

Prepared in cooperation with the
U.S. Environmental Protection Agency

August 1998

SCREENING SITE INSPECTION REPORT

Doyle, Frank J. Transformer Site; aka:
Frank J. Doyle Transformer

Leonard, Texas

TXD980865109

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29 June 1998
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SSI Report

Doyle, Frank J. Transformer Site; aka: Frank J. Doyle Transformer Leonard, Fannin County, Texas TXD980865109

Prepared in cooperation with the

U.S. Environmental Protection Agency

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September 1998

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NOTE

The State predecessor agencies: Texas Water Quality Board (TWQB), Texas Department of Water Resources (TDWR), Texas Water Commission (TWC), and Texas Air Control Board (TACB), referred to throughout this report are now known as the Texas Natural Resource Conservation Commission (TNRCC). The new agency, TNRCC, became effective September 1, 1993, as mandated under State Senate Bill 2 of the 73rd Regular Legislative Session.

SECTION 1

INTRODUCTION

The Texas Natural Resource Conservation Commission (TNRCC) has been requested by the U.S. Environmental Protection Agency (EPA) Region VI to conduct a Screening Site Inspection (SSI) at the Doyle, Frank J. Transformer Site; aka: Frank J. Doyle Transformer (EPA Identification number TXD980865109). The site is currently an active registered industrial solid waste generator and transporter facility (Solid Waste Registration No. 80952) that conducts salvage operations by stripping out-of-service power transmission transformers for recoverable metals. The facility has been owned and operated by Frank J. Doyle since 1974 until his retirement in January 1997 when operations transferred to (b) (6) [redacted]. The owner lives adjacent to the site.

The site consists of approximately 0.6 acres located at (b) (6) [redacted] in northeast Leonard (pop. 1,744 - 1990 Census), Fannin County, Texas. The facility consists of a single office/shop with surrounding yard storage areas surrounded by a continuous wooden fence. The owner maintains a bermed concrete pad for 55-gallon drums and oil storage tanks (1-375-gal and 2-500-gal) for drained fluids. The facility uses a high-temperature oven to burn residual oils, paper and varnish from copper and aluminum transformer cores generating stack emissions and residual ash. The facility is a registered emission source and maintains an air operating permit under Texas Air Control Board (TACB) Air Operating Permit No. T-18612, with special provisions pertaining to maximum allowable polychlorinated biphenyls (PCBs), use of chlorine-containing wire insulation or building wire, no visible emissions and cleaning oven minimum/maximum operating temperatures with restricted fuel sources.

As a result of residential concerns, an EPA Technical Assistance Team (TAT) collected 94 soil samples at the facility from July 10-12, 1995, revealing elevated PCBs (Aroclor 1260) in soils ranging from 1.57 mg/kg to 2,730 mg/kg. The highest concentrations were detected adjacent to the south gate where large transformers are stored prior to salvaging operations. Other areas containing PCB contamination >50 mg/kg included the east side transformer storage area, the southwest tank storage area and areas along the south alleyway. Lower level PCBs were detected in the adjacent residential yard located 40' south of the site, the owner's yard and in an on-site transformer off-load area. During a May 20, 1997 EPA Preliminary Assessment (PA) site reconnaissance inspection, yellowish/green stains were noted in soils adjacent to the wooden fence line and the shop walls showed signs of metal sidewall deterioration. The full extent of PCB contamination in soils adjacent to the facility had not been established. Whether PCB contamination had entered a public supply drinking water well located 0.25 miles south of the site had not been determined.

SITE OBJECTIVE WITH RESPECT TO THE PREREMEDIAL PROCESS

The preremedial stage of the Superfund process involves a PA and a site inspection (SI) stage consisting of an SSI and, if necessary, a Hazard Ranking System (HRS) Documentation Record. This SSI is being conducted to determine if the above-

referenced site is eligible for proposal to the National Priorities List (NPL) under the Federal Superfund Program. The SSI will focus on assessing the threats along the groundwater and soil exposure pathways within and adjacent to the site.

A PA has already been completed for the site. This SSI will build upon existing environmental data by obtaining additional background information relevant to the site through a file review and by collecting environmental samples to further characterize conditions at the site. Sampling conducted during the field work will attempt to document hazardous substance migration to and from the site from potential sources, and look for evidence of actual human and environmental exposure to contaminants. Results will be used to determine whether the site will move forward to a HRS Documentation Record or be designated as "no further remedial action planned."

PROJECT CONTACTS	PHONE
EPA: William Kirchner, Environmental Protection Specialist Superfund Site Assessment Section U.S. Environmental Protection Agency, Region VI 1445 Ross Avenue, Suite 1200, Dallas, Texas 75202-2733	(214) 665-8332
TNRCC: Wesley G. Newberry, Technical Director Allan M. Seils, PA/SI Program Manager C. Todd Counter, Health and Safety Officer Stephanie Pogue, Quality Assurance Officer	(512) 239-2512 (512) 239-2514 (512) 239-2591 (512) 239-5633
Texas Natural Resource Conservation Commission Pollution Cleanup Division Site Assessment Section P.O. Box 13087, Capitol Station, Austin, Texas 78711-3087	
James D. Thompson, Site Investigation Manager Field Investigator, Region 4 Office 1101 E. Arkansas Lane, Arlington, Texas 76016-6199	(817) 469-6750

SITE CONTACTS

(b) (6) Facility Manager F. J. Doyle Salvage Transformers (b) (6) P.O. Box 312 Leonard, Texas 75452	(903) 587-3342

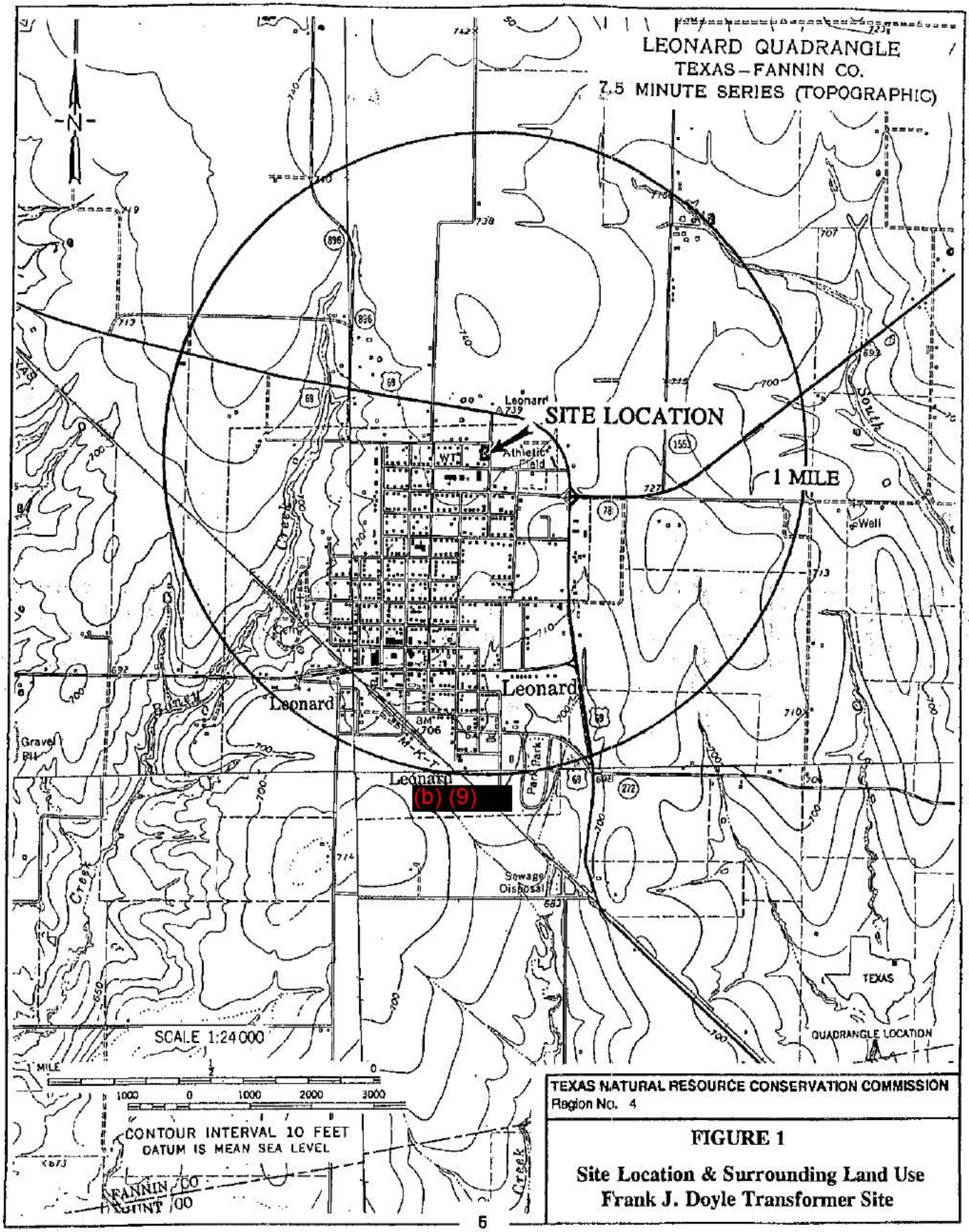
SECTION 2
SITE BACKGROUND AND DESCRIPTION

Site Information

The Doyle, Frank J. Transformer Site, aka Frank J. Doyle Transformer, is an active registered salvage yard that receives and processes out-of service power transmission transformers for recoverable metals. The site is located at (b) (6) (b) (6) in northeast Leonard (population 1,744, 1990 Census), Fannin County, Texas, as shown in Figure 1. The geographic coordinates of the site are Latitude 33° 23' 23" North, Longitude 96° 14' 34" West (ref 5, page 1). The site is bordered to the north by Cottonwood Street and a residential area, to the east by Poplar Street and the Leonard High School facility (225 students), to the south by an alleyway and two more residences, and along the western boundary by the owner's residence. Located less than 0.25 miles to the southwest are the Leonard Elementary School with 300 students and the Junior High School with 200 students (ref 5, pages 1 and 8). One of the facilities located southwest of the site is the school district day care center with play areas for small children and the nearest residence has a pony pen where small children frequently congregate (ref Appendix B, page 8).

The site consists of approximately 0.6 acres surrounded by a 6' wooden perimeter fence. The only structure is an office/shop where transformers are drained and stripped that contains a small oven used to bake removed transformer cores. Various yard storage areas surround the shop. There are three access gates located on the east (main entrance), south and west perimeter, which are normally locked after business hours. The facility is owned by Frank J. Doyle, who resides west of the facility, and the site is currently operated by (b) (6) The shop yard is gravel-covered with a concrete driveway at the east entrance. A bermed concrete pad located in the southwest corners contains 55-gallon drums and oil storage tanks (1 x 375-gal and 2 x 500-gal) used to accumulate drained liquids (ref 5, page 1).

The facility receives used power transformers shipped from various companies located in Texas, Oklahoma, Louisiana and Arkansas that are off-loaded and stored on site. Residual oil is pumped from the transformer casings and placed in storage tanks located in the bermed concrete storage area. The transformer cores are then removed and placed on a draining table to allow any remaining oil to displace, which is placed in 55-gallon storage drums. The drained cores are then placed in an oven to bake off remaining oil, paper and varnish. The baked cores are removed, cooled and stripped for recoverable metals. Accumulated transformer oil is transferred from the storage tanks to trucks and shipped off-site to an authorized disposal/recycling facility by an authorized waste oil transporter (see site photographs #23 thru #31, Appendix A). According to the facility owner, Mr. Frank J. Doyle, the facility only accepted non-PCB filled transformers beginning in the late 1970's; however, prior to then transformer oil was not tested and some of the drained oil had been distributed to various individuals throughout Leonard for use as weed control (ref 5, page 2).



TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
Region No. 4

FIGURE 1

Site Location & Surrounding Land Use
Frank J. Doyle Transformer Site

The facility submitted registration as a non-hazardous industrial solid waste generator/ transporter (Solid Waste Registration No. 80951) to the Texas Water Commission (TWC) on July 21, 1993, listing the following waste streams: (1) used oil from non-PCB transformers (Waste Code 12061), (2) ash residue from a furnace used to remove varnish from transformer cores (WC 23041), and (3) general plant trash (WC 39012). Listed waste management units included: (1) 1x375-gallon tank, 2x500-gallon tanks and various 55-gallon drum storage containers, (2) a high temperature oven, and (3) a 4-yd dumpster (ref 6, page 2).

On January 21, 1988, the facility applied for a special air operating permit (TACB Special Permit No. S-18612) for authorized operation of an 18,500 Btu/lb cart-loaded Model BB-26 Heat Cleaning Oven manufactured by BAYCO Industries, San Leandro, California to burn off residual oil, paper and varnish from transformer cores (ref 7, pages 1-3, atchs 1-5). After a lengthy public review period with 80 comment letters generated, a meeting was convened at the Leonard High School on March 22, 1988. Based on a comprehensive TACB review conducted on June 27, 1988 and issues discussed during the pre-hearing conference for Contested Case Hearing No. 245, the permit was approved based on Findings of Fact and Conclusions of Law outlined in a subsequent TACB-issued Order No. 88-07, dated July 15, 1988. The order was issued as requested by the facility owner so that opponents identified during hearings could not challenge the permit at a later date (ref 8, atch A, pages 1-10; ref 9, atch 2). On April 22, 1989, an air operating permit (TACB Permit No. T-18612) was applied for, approved and issued effective April 5, 1991, with special provisions as listed below for continued operations of the heating unit (ref 10, page 1 and atch 3):

(1) maximum allowable oven stack emission rates would be less than:

	#/hr	TPY*
volatile organic compounds (VOC)	0.004	0.002
total nitrogen oxides (NOX)	0.044	0.030
sulphur dioxide (SO2)	0.002	0.0012
particulate matter (PM)	0.030	0.018
carbon monoxide (CO)	0.021	0.013
polychlorinated biphenyls (PCBs)	6.75×10^{-6}	4.05×10^{-6}

*tons per year

(2) all combustible material would contain less than 50 ppm PCBs,

(3) each new source would be test certified to contain less than 50 parts per million (ppm) PCBs within 10 days of securing the new source,

(4) building wire containing chlorine insulation would not be combusted,

(5) the TACB and other authorized pollution control programs having jurisdiction could request sampling of any source material at any time,

(6) no visible emissions (opacity of 5% or less),

(7) oven operating instructions would be clearly posted,

(8) fuel sources would be restricted to natural gas, liquefied petroleum gas (LPG) or electrical power,

(9) combusted material would be less than 10% by weight of the total load,

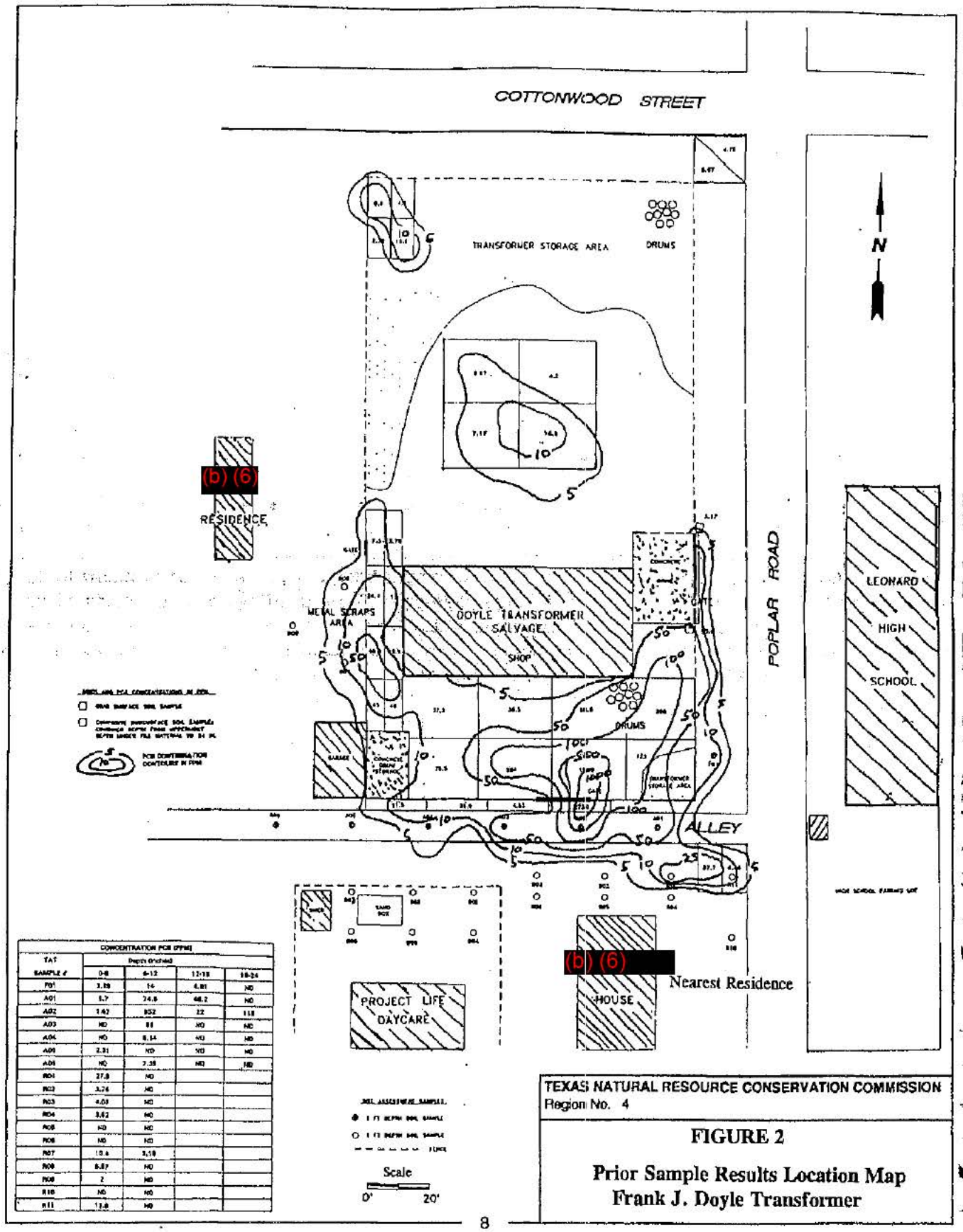
(10) ash would not become airborne, and

(11) the primary combustion chamber temperature would be maintained $<800°F$ and the secondary combustion chamber would be $>1400°F$.

On July 10-12, 1995, an EPA Technical Assistance Team (TAT) conducted a site investigation for PCB-contaminated soils by collecting 94 surface and subsurface samples from visibly-stained areas on site and from locations outside the facility along the west, south and east perimeters. Adjacent residential yards, the alleyway, and bar ditches located along Poplar Street were sampled to determine the presence and/or extent of PCB contamination. On-site sample results revealed elevated PCBs (Aroclor 1260) ranging from 2.7 mg/kg to 1,590 mg/kg at depth 0"-24" within the gridded areas shown in Figure 2. The highest on-site levels were detected adjacent to the transformer storage area located at the south entrance gate. PCB values >50 mg/kg were detected near the tank storage area located in the southwest corner and near the transformer storage area at the east entrance (ref 5, pages 3-4).

Results from off-site samples indicated PCB-contaminated soils ranging from 1.57 mg/kg to 2,730 mg/kg at varying depths (0"-6", 6"-12", 12"-18" and 18"-24") located outside the perimeter fence, in the alleyway, and in two adjacent residential yards. The isopleths drawn in Figure 2 indicate the approximate extent and level of Aroclor 1260 PCB contamination. The table in Figure 2 indicates the depth interval. The highest off-site levels were detected just outside the perimeter fence adjacent to the transformer storage area located at the south entrance gate. The highest residential area level (37.7 mg/kg) was detected near the southeast corner of the site adjacent to the nearest residence's yard located 40' south of the facility at depth 0"-24". The highest public access area level (852 mg/kg) was detected in the alleyway south of the site (sample location A-02) at depth 6"-12", which is also adjacent to the south entrance gate transformer storage area. Both the sampled residential yard and alleyway are located downgradient from site sources (ref 5, pages 3-4).

Based on results of the July 10-12, 1995 soil investigation, a PA was authorized. An EPA TAT performed the PA on-site reconnaissance on May 20, 1997, collected additional site information and assessed potential threats to nearby residents and the environment. The PA identified two city-owned public drinking water wells, one located within 0.25 miles of the site and a third private-use well located within a



TAT	Depth (inches)			
SAMPLE #	0-6	6-12	12-18	18-24
P01	3.59	16	4.81	ND
A01	5.7	24.8	48.2	ND
A02	1.62	852	22	118
A03	ND	88	ND	ND
A04	ND	8.14	ND	ND
A05	2.31	ND	ND	ND
A06	ND	2.38	ND	ND
R01	27.8	ND		
R02	3.26	ND		
R03	4.03	ND		
R04	3.62	ND		
R05	ND	ND		
R06	ND	ND		
R07	10.6	3.58		
R09	8.87	ND		
R08	2	ND		
R10	ND	ND		
R11	13.8	ND		

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FIGURE 2

Prior Sample Results Location Map
Frank J. Doyle Transformer

1-mile radius of the site. Although the two city wells were noted developed in the deep Woobine aquifer at an average screened depth of 1,464', a file review revealed the wells had never been tested for PCBs (ref 5, pages 4-5).

Based on findings from the PA, an EPA SSI was approved on July 21, 1997 to collect additional site information and investigate other contaminants that may have migrated along the soil exposure pathway and possibly to the groundwater pathway. A review of current data to date indicated that the site would not likely meet minimum eligibility requirements as a federal National Priority List (NPL) site; however, information collected during the SSI would be evaluated prior to assigning the site for further action under State Authorities (ref 11, pages 1-2).

Therefore, the pathways of concern as described in the PA, dated May 20, 1997, are the groundwater and soil exposure pathways. The SSI will focus on establishing primary groundwater targets potentially exposed to source contaminants and/or any additional nearby residential targets that meet soil exposure target criteria. Since the PA identified no perennial streams or receptor bodies of water located within the two-mile target distance limit criteria, the surface water pathway will not be evaluated. In addition, since there is no evidence or analytical data to date indicating an air release from site sources, the air pathway will not be evaluated.

Waste Containment/Hazardous Substance Identification

The information used to identify the waste characteristics at the Frank J. Doyle Transformer Site was obtained from a review of both federal and state records. The site was identified to have several waste sources where hazardous substances may have been improperly disposed or spilled from careless handling during salvage operations. The specific areas of interest (as shown in Figure 5) include:

(1) a 50'x30' L-shaped **transformer storage area** located between the south and east entrance gates containing documented PCB-contaminated soils. The area is used for long-term storage of transformers received from suppliers,

(2) a 75'x30' L-shaped **container storage area** located in the southwest corner of the site containing documented PCB-contaminated soils. The area contains a bermed concrete pad and numerous tanks/drums used to store drained transformer oils prior to transfer and off-site disposal, and

(3) a 50'x50' **transformer off-load area** located in the north central portion of the site containing documented PCB-contaminated soils. The area is used to initially off-load out-of-service transformers received from suppliers and for short-term storage of the smaller transformers (ref 5, pages 2-4 and 7-8).

Transformer Storage Area - Initial EPA investigations of PCB contamination remaining in the southeast transformer storage area were conducted from July 20 to October 12, 1990. Subsequent EPA investigations were conducted on April 19, 1991 and again on September 7, 1994 (ref 5, pages 2-3). The owner also conducted separate soil investigations from May 23-24, 1995 using an environmental contractor (ref 5, page 3). Analytical results from the most recent EPA investigation conducted on July 10-12, 1995, documented elevated PCBs (Aroclor 1260) ranging from 135 mg/kg to 1,590 mg/kg at depth 0"-24" at various locations (shown in Figure 2) within the southeast transformer storage area (ref 5, page 3 and Figure 3). These values exceeded the listed TNRCC TAC 335.568 - Appendix II, Industrial Soil/Air and Ingestion (SAI-Ind) Risk Reduction Standard No. 2 medium specific concentration (MSC) level for PCBs at an industrial facility. The MSC level for PCBs at an industrial facility are less than 25.0 mg/kg by 5.4 to 63.6 times the maximum recommended value.

Container Storage Area - Visible evidence of contamination remaining in the container storage area was initially observed during the May 20, 1997 EPA PA on-site reconnaissance inspection when yellowish/green stains were noted in soils located along the fenceline adjacent to the container storage area where accumulated transformer oils were reportedly pumped to a tanker truck for off-site disposal. Further evidence of spilled/leaking waste oils was noted originating from cracks in several places along the edge of the deteriorating concrete berm with visible oil stains noted in the adjacent soils. Analytical results from the July 10-12, 1995 EPA PCB investigation revealed Aroclor 1260 ranging from 25.5 mg/kg to 48.0 mg/kg at depths 0"-24" in soils adjacent to the container storage area (ref 5, pages 3 and 7). These values exceeded the listed Appendix II, SAI-Ind MSC level by 1.92 times the maximum recommended value.

Transformer Off-Load Area - Analytical results from the July 10-12, 1995 EPA PCB investigation revealed Aroclor 1260 ranging from 4.2 mg/kg to 16.6 mg/kg at depths 0"-24" in the transformer off-load area (ref 5, pages 3-4). These levels were determined below the 25.5 mg/kg maximum recommended Appendix II, SAI-Ind MSC value listed for an industrial site.

Based on a file review of existing site characterization data, the primary contaminants of concern include PCB wastes that: (1) may have discharged to surface soils in the transformer storage area located in the southeast portion of the site, (2) that may have been spilled during transfer operations conducted in the container storage area located in the southwest portion of the site, and (3) that may have discharged to surface soils in the transformer off-load area located in the north central portion of the site. A summary of waste sources by identity, location, description, and estimated quantities are provided in Table 1.

TABLE 1. SOURCE WASTE CHARACTERISTICS

Source Identity	Source Location	Source Description	Estimated Quantity
Transformer Storage Area	Southeast portion of site	Transformer oils containing PCBs that may have spilled/ discharged to adjacent soils	Contaminated Soils L-shaped area 20'x50' + 10'x20' ≒ 1,200 ft²
Container Storage Area	Southwest portion of site	Transformer oils containing PCBs that may have spilled from transfer operations.	Contaminated Soils L-shaped area 10'x75' + 20'x30' ≒ 1,350 ft²
Transformer Off-Load Area	North central portion of site	Transformer oils containing PCBs that may have spilled during off-load operations.	Contaminated Soils Box-shaped area 50'x50' = 2,500 ft²

Sources : Reference 5, pages 2-3 and 7; Appendix B, pages 12, 16.

A total of three (3) source characterization soil samples (SO-17, SO-18 and SO-19) were collected during the SSI at depths 6"-12" just below a compacted gravel base from the three identified on-site waste management areas to: (1) substantiate prior sample results, (2) determine current levels of remaining source contamination, and (3) obtain Contract Laboratory Program (CLP) quality data. A summary of sample location/rationale is provided in Table 5 and approximate sample locations are shown in Figure 5. Sample location photographs include Photos #19 thru #22 (see Appendix A). Sample documentation was recorded in a field log book (see Appendix B).

All source characterization samples were analyzed for CLP metals, cyanide, polychlorinated biphenyls (PCBs), and CLP organics (volatiles, semivolatiles and pesticides). Inorganic analysis was performed by AATS, 1700 West Albany, Suite C, Broken Arrow, Oklahoma, and organic analysis performed by Clayton Environmental Consultants, 22345 Roethal Drive, Novi, Michigan. Summaries of chemical constituents detected 3X above highest background levels are shown below in Tables 2a and 2b. All additional analytical results are shown in Appendix C to include samples SO-17 thru SO-19, ER-01, ER-02, FB-01 and FB-02.

TABLE 2A
Inorganics Detected in Source Samples and Highest Background

CLP Sample ID Number / Sample Description	SO-17 MFH-L99 Transformer Off-Load Area	SO-18 MFH-L94 Container Storage Area	SO-19 MFH-L95 Transformer Storage Area	SO-01 MFH-M13 Background Sample	SO-02 MFH-M14 Background Sample	SO-03 MFH-M09 Background Sample
Hazardous Substance	mg/Kg [SQL]	mg/Kg [SQL]	mg/Kg [SQL]	mg/Kg [SQL]	mg/Kg [SQL]	mg/Kg [SQL]
Copper	279 [0.53]	204 [0.53]	30.9 [0.51]	11.6 [0.55]	20.6 [0.61]	20.0 [0.60]
Reference						

CRDL = Contract Required Detection Limit. L = Reported concentration is between IDL and the CRDL.
[SQL] = Sample Quantitation Limit. ND = Undetected at the laboratory reported detection limit.
▒ = Greater than 3X the highest background value; or for a background sample, indicates the highest detected value. CLP = Contract Laboratory Program.
IDL = Instrument Detection Limit mg/Kg = milligrams per kilogram.

TABLE 2B
Organics Detected in Source Samples and Highest Background

CLP Sample ID Number / Sample Description	SO-17 FFR77 Transformer Off-Load Area	SO-18 FFR72 Container Storage Area	SO-18DL FFR72DL Dilution of SO-18	SO-19 FFR73 Transformer Storage Area	SO-19DL FFR73DL Dilution of SO-19	SO-01 FFR91 Bckgnd Sample	SO-02 FFR92 Bckgnd Sample	SO-03 FFR87 Bckgnd Sample
Hazardous Substance	ug/Kg [SQL]	ug/Kg [SQL]	ug/Kg [SQL]	ug/Kg [SQL]	ug/Kg [SQL]	ug/Kg [SQL]	ug/Kg [SQL]	ug/Kg [SQL]
Hexachloro benzene	ND [13,000]	15,000 [14,000]	**	ND [440]	**	ND [460]	ND [500]	ND [500]
PCBs Aroclor-1260	160J [42]	1,400,000* [44,000]	2,300,000J [140,000]	1,700* [44]	3,100J [440]	ND [46]	33J [50]	340J [50]
Dilution Factor	1	1,000	10,000	1	10	1	1	1
Reference								

ND = Not detected at the reported quantitation limit. [SQL] = Sample Quantitation Limit.
* = Result not recommended for use because of associated QA/QC performance inferior to that from other analysis. CLP = Contract Laboratory Program.
** = Original sample was not diluted. ug/Kg = micrograms per kilogram.
▒ = Greater than 3X the highest background value; or for a background sample, indicates the highest detected value. PCBs = polychlorinated biphenyls.
J = Estimated value.

Table 2a reveals a single inorganic constituent **copper** detected in two of three source samples that was greater than three times (3x) the highest detected background level (3x20.6 mg/kg = 61.8 mg/kg) identified from soil sample SO-02. Soil sample SO-17 and SO-18 indicated moderate levels of copper at 279 mg/kg and 204 mg/kg.

Table 2b indicates a semi-volatile organic compound and a PCB that were detected greater than three times (3x) the highest background level or above a sample quantitation limit. Soil sample SO-18 indicated moderate levels of **hexachloro-benzene** at 15,000 ug/kg and soil samples SO-18 and SO-19 indicated qualified significantly elevated levels of **PCBs (Aroclor-1260)** at 2,300,000 ug/kg and 3,100 ug/kg respectively.

There were no volatiles, cyanide or pesticides in any of the source soil samples that were detected greater than 3X the highest background level.

Groundwater Pathway

Characteristics

General Regional Geology

The southern portion of Fannin County and the Frank J. Doyle Transformer Site are located in the northern fringe of a band of Texas Blackland Prairie. This physiographic province extends through North Central Texas and is characterized by broad flood plains with long parallel drainage-ways and shallow stream valleys with well-rounded drainage divides. Most of these shallow streams cease to flow during extremely dry periods, especially at the headwaters; therefore many rural areas depend on local groundwater for supplemental irrigation. Natural vegetation typically includes blue-stem, needle and buffalo grasses with isolated wooded areas along bottomlands (ref 12, Appendix G, pages G.1 and G.3; ref 13, page 2).

The stratigraphic units in Fannin County are from oldest to youngest, the Cretaceous age Trinity, Washita-Fredericksburg, Woodbine, Eagle Ford, Austin and Taylor Groups. The water-bearing units include the Woodbine Group and the deeper Paluxy and Twin Mountains Formations of the Trinity Group. Collectively, these units attain an average thickness of 3,400 ft and consist of interbedded limestone, marl, shale, fine sand, sandy shale, clay, chalk and mudstone with subordinate beds of fine-to-coarse sand, silt, gravel and some lignite (ref 14, pages 6, 7 and 10). The tightly-compacted clay, marl, limestone, chalk and shale layers of the Washita-Fredericksburg Group underlie the moderately productive Woodbine aquifer and act as an aquitard between the deeper and higher-yielding Paluxy and Twin Mountains Formations. As a result, there is no apparent inter-connection between the Woodbine and Paluxy/Twin Mountains aquifers (ref 15, page 5; ref 5, page 5).

Surface outcrops in Fannin County generally parallel the Talco Fault Zone, located less than 30 miles to the south in a north-south trending zone. The fault zone then trends eastward and parallels the Red River. The Cretaceous Age Austin Group is the major surface outcrop covering most of Fannin County, and consists primarily of chalk, limestone and marl interbedded with fine - medium grained fossilferous sands. Outcrops of the Eagle Ford Group are found north of the Austin Group outcrops along the Red River. Regionally, these stratigraphic units dip eastward beneath younger strata at typical rates of 40' per mile with a fairly constant thickness as depth increases. The Frank J. Doyle Transformer site is located on outcrops of the Austin Group (ref 14, pages 6-7; ref 15, pages 6-8 and 11).

Regional Hydrogeologic Setting

The primary water-supplying hydrologic unit in the vicinity of the site is the Woodbine aquifer, which is listed as a minor aquifer by the State of Texas (ref 16, Appendix G, page G.4). The underlying Trinity Aquifer is not used in the vicinity of the site. The

upper part of the Woodbine consists of crossbedded ferruginous sand, sandy clay and shale containing lignite and gypsum, making the water more highly mineralized. Thicker, lenticular shaped sands are primarily found in the lower part of the Woodbine aquifer. Clay content increases as the aquifer extends eastward and the Woobine ceases to be an aquifer in eastern Lamar and Red River Counties (ref 14, page 10).

The top of the Woodbine aquifer is approximately 1,500 ft deep ranging from 400 ft to 600 ft thick with an average thickness of 450 ft (ref 15, pages 8 and 11; ref 17, page 92). According to well logs for the two developed municipal wells located near the site, measured static water levels were 449 ft in 1960 and 536 ft in 1976 (ref 5, page 4; ref Appendix E, pages E-3 and E-9). Local groundwater use from the Woodbine includes supplementing agricultural irrigation, meeting livestock, industrial and food processing needs and use as a public drinking water supply source. Groundwater movement within the aquifer follows an east-southeast direction, which generally parallels the bed dip. The hydraulic gradient varies from over 37 feet per mile to less than 13 feet per mile (ref 15, page 19).

According to well log information, the average yield during development performance tests of the two city wells was 315 gallons per minute (gpm) with 74 foot drawdown (ref Appendix E, Well Log No. 18-39-701 and 18-39-702). The coefficient of permeability for the coarser sands found in the lower portion of the Woodbine is 44 gallons per day/ft^2. Transmissibility values range from 1,320 to 14,700 gallons per day/ft (gpdpf) with an average value of 4,700 gpdpf (ref 15, page 21).

Water quality is dependent on the mineral composition of the rocks through which it passes and generally groundwater becomes more mineralized at increased depth and temperature. Dissolved solids in the Woodbine aquifer generally exceed 1,000 milligrams per liter (ref 15, page 32; ref 17, page 92).

Targets

Based upon information contained in the State of Texas well logs, there are six (6) wells within a 1-mile radius of the site (see Figure 3). Two of the wells are former municipal wells (State Wells No. 18-47-101 and -102) and one is a test well (State Well No. 18-47-103) that were developed in the Woodbine aquifer. These wells were completed at depths ranging from 1,605 - 1,712 ft with screened intervals from 1,502 - 1,581 ft. These wells were plugged in 1975 and are no longer in use (ref Appendix E, pages 18-33).

According to the City Public Works Director, two wells (State Wells No. 18-39-701 and 702) are currently being used as the city's primary public drinking water source (ref Appendix B, page 1). The remaining well is a 48" diameter domestic well (State Well No. 18-39-9b) located 0.75 miles to the northwest developed in shallow perched groundwater at a depth of 50 ft. It has not been established whether this well is used as a drinking water source (ref 5, page 4).

There is no documentation indicating that drinking water wells in the vicinity of the site have been contaminated by hazardous substances from the site (ref 5, page 5). Results of two recent TNRCC Public Water Supply Regulatory Program water quality inspections conducted on October 26, 1994 and June 26, 1990, revealed no contaminants above Public Drinking Water Standards for the two municipal wells and from the nearby Arledge Ridge Water Supply Corporation well located 2 miles north of the site (ref 18, pages 1-4, atchs 1-3; ref 19, pages 1-3).

No wellhead protection areas exist within a 4-mile radius of the site (ref 20, Appendix G, page G.6).

The nearest potential groundwater target identified during the PA is the City of Leonard Pump Station No. 1 municipal well (State Well No. 18-39-701). This well is located at the intersection of (b) (9) t within a ¼ mile radius of the site as indicated in Figure 3 and illustrated in photo #1, Appendix A. According to the well log, the reported depth is 1,690 feet with a screened interval from 1,523 - 1,673 feet (ref 5, page 4; ref Appendix E, page 3).

Public, industrial, and domestic water wells have been identified within a 4-mile radius of the site using State of Texas water well logs and results of recent TNRCC Public Water Supply inspection reports (ref 18, pages 1-4; ref 19, encl 1). All well logs within the 1-mile radius and all public drinking water supply well logs within the 4-mile radius are included in Appendix E. Ground water target populations determined during the PA were calculated using an average of 2.48 persons per household for Fannin County and apportioned based on a combined well water distribution system serving 1,503 persons (1990 Census data) within a 1-mile radius (ref 5, page 5). Target population data for public supply Well No. 2 maintained by the privately-owned Arledge Ridge Water Supply Corporation was apportioned based on 185 connections and 2.48 persons per household within a 2-3 mile radius from the site (ref Appendix B, page 8; ref 19, page 1 and atch C).

Based on a review of TNRCC water well records, the following target populations were defined (ref 5, page 5; ref 19, page 1 and atch C; ref Appendix E, pages 1-46):

- Within 0 - 0.25 miles of the site, 1 public water supply well was identified. Drinking water from this well is apportioned to approximately 752 people.
- Between 0.25 - 0.50 miles of the site, there is 1 public water supply well. Drinking water from this well is apportioned to approximately 751 people.
- Between 0.50 - 1 mile of the site, there is 1 domestic well, 2 former public supply wells (closed) and a test well (closed). Drinking water from the domestic well is supplied to approximately 3 people.

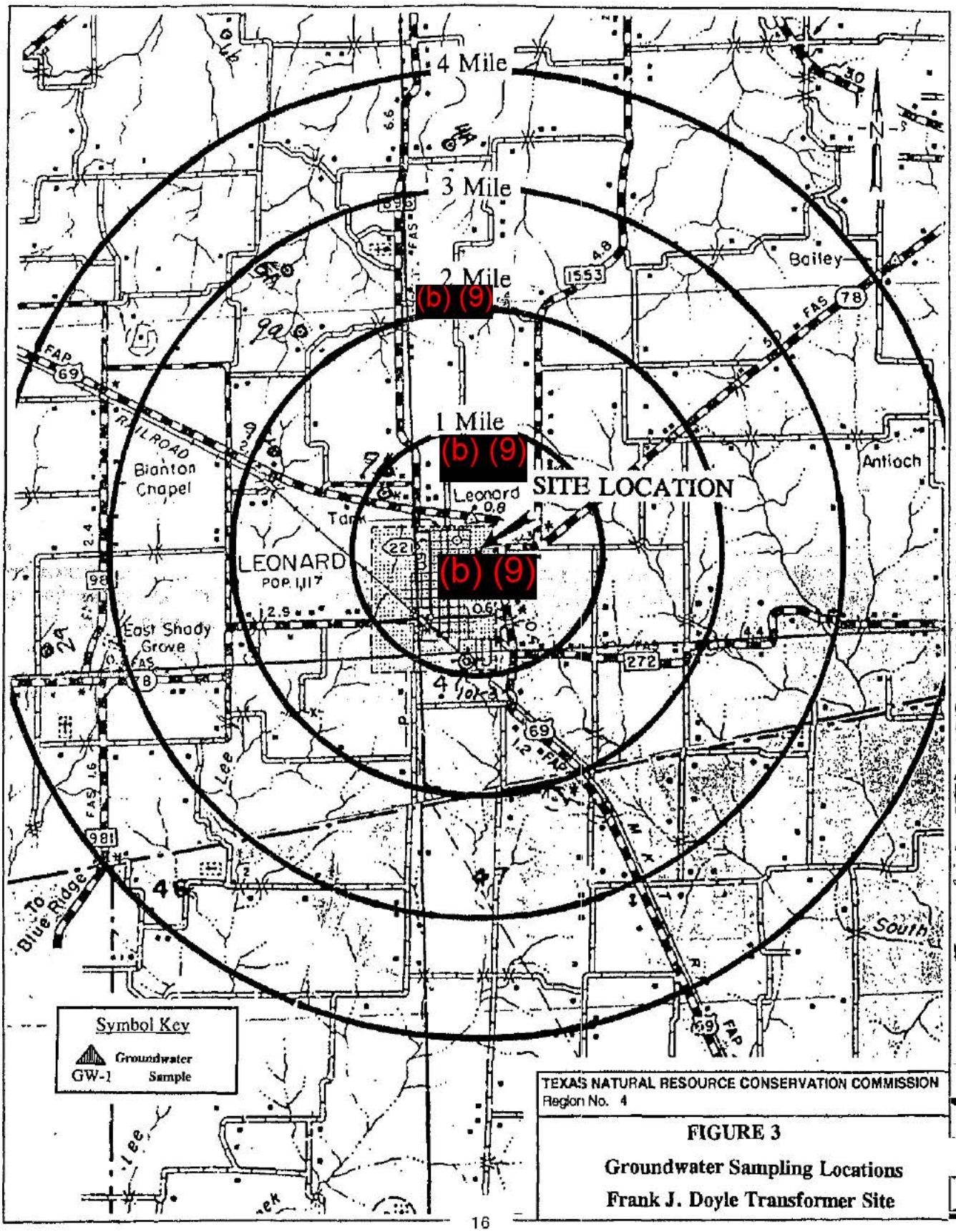

FIGURE 3

Groundwater Sampling Locations

Frank J. Doyle Transformer Site

- There is 1 domestic well in the 1 - 2 mile radius from the site. Drinking water from this well is supplied to approximately 3 people.

- There is 1 domestic well, 1 public supply well and 1 well designated as other (stock well) in the 2 - 3 mile radius from the site. Drinking water from these wells is supplied to approximately 462 people.

- There are no wells within the 3 - 4 mile radius from the site.

A total of three public drinking water wells (groundwater samples GW-01 through GW-04 with one duplicate GW-02) were sampled during the SSI. The samples were analyzed for soluble and suspended contaminants to determine potential source migration to the Woodbine aquifer that may have originated from site sources. One of the wells located off-site and upgradient from identified site sources (GW-04) was designated as the background well for attribution of site contaminants.

Groundwater sample identification, description, location and rationale are provided in Table 3. Sample locations are illustrated in Figure 3. Sample location photographs include Photos #1 thru #4 (see Appendix A). Applicable sample documentation was recorded in a field log book (see Appendix B).

Analysis of groundwater samples was performed by the USEPA Houston Branch Laboratory, Houston, Texas for metals, cyanide, polychlorinated biphenyls (PCBs), and organics (volatile organic compounds, semivolatiles and pesticides). Summaries of chemical constituents detected are shown in Table 4. All groundwater analytical results are provided in Appendix C, samples GW-01 thru -04 and FB-03.

Based on a review of groundwater sample results, the only chemical constituent detected that qualified as a release (i.e., 3X the highest detected background level or above the sample quantitation limit) was low-level **bis2-ethylhexylphthalate** at 9.9 ug/L detected in groundwater sample GW-03.

There were no detected inorganics, volatiles, cyanide, pesticides or PCBs in any of the groundwater samples that qualified as a release.

TABLE 3. GROUNDWATER SAMPLE LOCATIONS

Sample Matrix	Sample ID #	Sample Location	Rationale
Groundwater Samples	GW-01	City of Leonard Pump Station #1 (State Well No. 18-39-701) well located at the intersection of (b) (9)	Assess potential groundwater contamination from a municipal well located nearest to the site.
	GW-02	Duplicate groundwater sample from the same location as GW-01.	Quality Assurance/Quality Control (QA/QC).
	GW-03	City of Leonard Pump Station #2 (State Well No. 18-39-702) well located 1 mi. north of the city.	Determine the extent of groundwater contamination extending north of the site.
	GW-04	Arledge Ridge Water Supply Corp. privately-owned drinking water well located 2 mi. north of the city.	Establish upgradient background values for attribution of contaminants to site sources.

TABLE 4 - INORGANIC AND ORGANIC GROUNDWATER SAMPLE RESULTS

Inorganic Constituents µg/L	8FAXDW02-01 GW-01 Pump Sta. No.1	8FAXDW02-02 GW-02 Duplicate GW01	8FAXDW02-03 GW-03 Pump Sta. No. 2.	8FAXDW02-04 GW-04 Background	CRDL µg/L
Calcium	856	981	987	947	150
Iron	ND	72	94	81	25
Magnesium	314	317	387	339	150
Manganese	5	5	ND	ND	5
Sodium	271,000	276,000	296,000	289,000	500
Organic Constituents ug/L	**8FAXDW02-01 GW-01 Pump Sta. No.1**	**8FAXDW02-02 GW-02 Duplicate GW01**	**8FAXDW02-03 GW-03 Pump Sta. No. 2.**	**8FAXDW02-04 GW-04 Background**	**CRQL ug/L**
Bis2-ethylhexyl phthalate	ND	ND	9.9	ND	4

CRDL = Contract Required Detection Limit.
ug/L = micrograms per liter.

CRQL = Contract Required Quantitation Limit.
ND = Analyte concentration undetected at the reported sample quantitation limit.

Surface Water Pathway

Characteristics

The Frank J. Doyle Transformer site is located within non-designated Segment No. 0306 at the western extreme of the Sulphur River Basin, which flows east joining the Middle and North Sulphur Rivers and converges with the Red River 308 miles downstream in Arkansas. The major tributaries of the Sulphur River are Days Creek and White Oak Bayou. The Sulphur River Basin drains an area of 3,558 square miles and includes 11 counties (ref 24, page 123). The drainage area upgradient of the site is estimated at 7 acres based on topographic map elevation contours (ref 21, page 1). During the SSI reconnaissance, it was noted that surface water at the site generally flows to the southeast along natural drainage areas collecting in the alleyway and bar ditch located east and adjacent to Poplar Street, thence flowing south to Hackberry Street where it pools at a culvert as shown in Figure 5. During periods of heavy runoff, the pooled water drains further south and east along roadside ditches seeking low areas (ref Appendix B, page 16). The city has few storm drains and the majority of the city's runoff is directed out of the city via drainage ditches (ref 5, page 6).

The site is not located within the 100-year flood boundary (ref 5, pages 6-7).

The 2-year 24-hour rainfall for the area of the site is approximately 4.0 inches (ref 25, page 95).

Targets

According to the PA, there are no identified perennial streams or receptor bodies of water located within the required two-mile target distance limit criteria (ref 5, page 6). Figure 4 supports this finding revealing a radial pattern of surface water pathways originating near the City of Leonard that appear to drain outward from a broad elevated plateau. By inspection, all streams located within a 4-mile radius of the site are identified as intermittent (ref 22, page 2). In addition, the insert of the Sulphur River Basin shown in the upper left portion of Figure 4 indicates no perennial streams in the vicinity of the site and that the headwaters of the South Sulphur River (Segment 0306) appear to originate in southwest Fannin County near the City of Leonard flowing east (ref 24, page 125).

Since there are no identifiable perennial streams or receptor bodies of water within the required target distance criteria that may have received wastes originating from site sources, the surface water pathway will not be evaluated. Contaminants that may have migrated near the site along the limited overland flow segment of the surface water pathway will be evaluated under the soil exposure pathway.

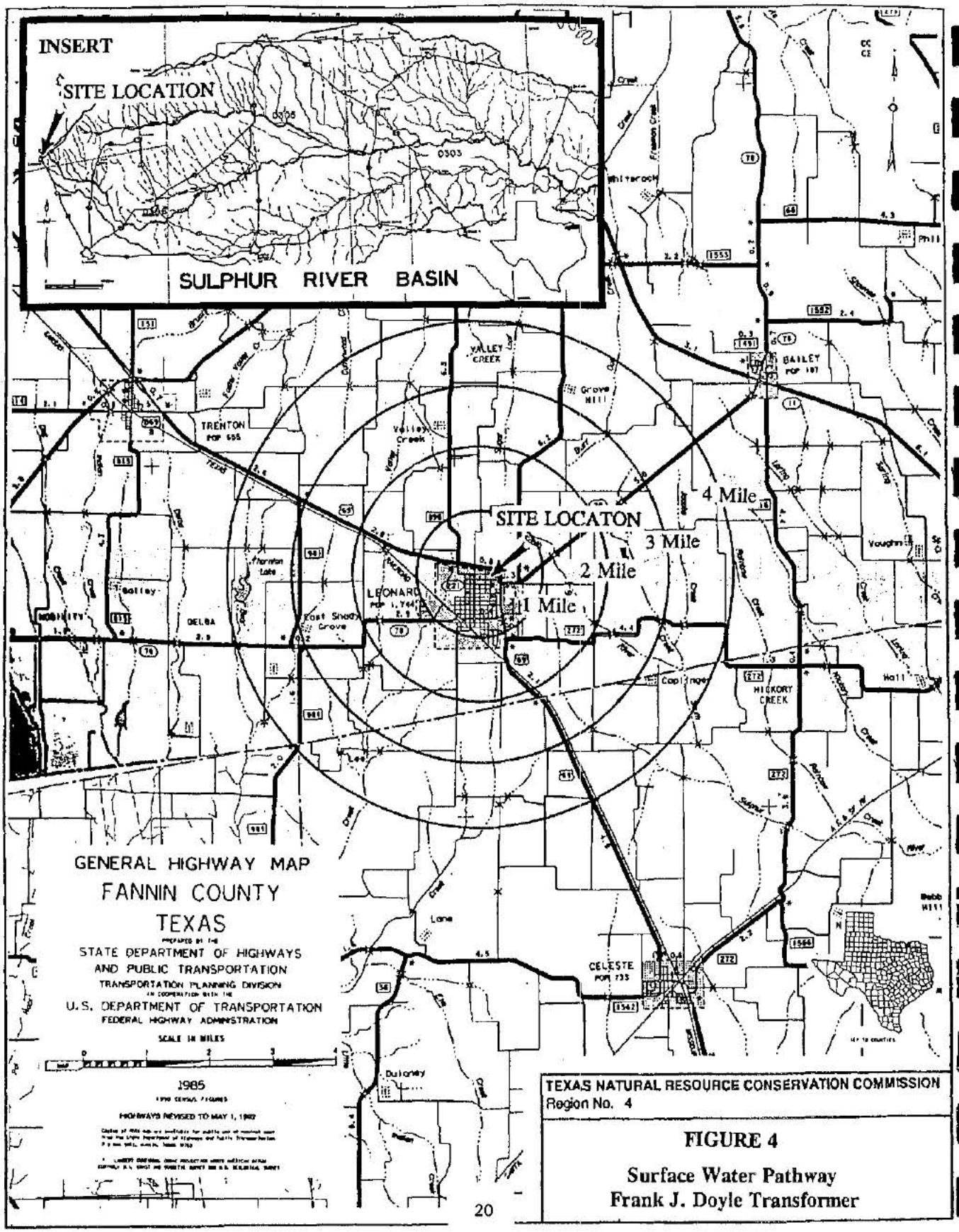

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FIGURE 4

Surface Water Pathway
Frank J. Doyle Transformer

Soil Exposure Pathway

Characteristics

According to the PA, public access to the site is restricted by means of a 6 foot-high wooden fence surrounding the site with three entrance gates located along the west, south, and eastern perimeter, which was confirmed during the SSI reconnaissance. According to the facility manager, the entrance gates are normally locked after business hours and during business hours, someone is normally at the site to preclude inadvertent entry. Vehicular access is thru the east and south gates with parking areas provided for visitors. The west gate is for pedestrians only and opens to the owner's residence (ref 5, page 7; ref Appendix B, page 2).

As shown in Figure 1 and photos #33 and #34, Appendix A, adjacent land use near the site is primarily residential since the site is located near the northeast city limits of Leonard, Texas (population 1,744 -1990 Census). There are several city parks, public schools, churches and local retail businesses located within a 1-mile radius of the site. State Highway (SH) 69 is a major public roadway located approximately 500' north and east of the site (ref 21, page 1; Appendix B, page 3 and 8). During the SSI off-site reconnaissance, it was observed that surface water originating from site sources generally flows to the southeast only for a limited distance. The runoff collects within nearby bar ditches and pools in low spots near adjacent residential yards as shown in Photos #8 - #11 and #33, Appendix A (ref Appendix B, page 16).

Potential off-site runoff sources applicable to the soil exposure pathway include the three previously identified on-site waste management areas (summarized in Table 1) where PCB-contaminated soils have been documented (ref 5, pages 2-3 and 7).

Since there is a likelihood of surface soil contamination remaining at or near the site, primary soil exposure pathway targets include resident population, resident workers, terrestrial sensitive environments and nearby population threats, which are discussed in more detail in the following sections.

Targets

According to the PA, there were no on-site residences, day care centers or schools with occupants or persons in attendance who were within 200' of an identified area of observed contamination, which was substantiated during the SSI reconnaissance and interviews with knowledgable site personnel. In addition, there were no parks or other established recreational areas observed on-site and located within 200' of an area of observed contamination. The nearest occupied residence (as shown in Figure 2 and Photo #34, Appendix A) was noted located approximately 40 feet south of the site across an alleyway (ref 5, page 8; ref Appendix B, page 12).

The number of on-site workers, according to Mr. Frank Doyle, has been no more than three (3) personnel; however, there are numerous transporters and waste haulers who frequently visit the site conducting business. During the SSI reconnaissance, there were no observed adjacent business properties with work stations located within 200 feet of an area of observed contamination (ref 5, page 8; ref Appendix B, pages 2 and 8).

According to the PA, nearby population targets within 200 feet of a site source include the adjacent Leonard High School with 225 students, the Leonard Junior High School with 200 students and the Leonard Elementary School with 300 students. School locations and student population data were substantiated during the SSI off-site reconnaissance and during interviews with knowledgeable school personnel. In addition, a child care center, the Leonard Integrated School District (LISD) Child Care Center) facility, which has a children's playground located in the back adjacent to the alleyway, was noted located within 200 feet of a site source as illustrated in Photo #36, Appendix A. According to the child care center director, there are 6 adult staff and 14 pre-school aged children who attend from 7:30 am to 4:00 pm five days a week (ref 5, page 8; ref Appendix B, pages 7, 37 and 46).

Since the site is still active, there is frequent human activity at the site related to off-loading and handling of out-of-service transformers and conducting metal recovery salvage operations which could result in workers being inadvertently exposed to remaining site contaminants. In addition, both during the PA and SSI site reconnaissances, numerous students of all ages were noted walking to and from school along alleyways located south of the site as illustrated in Photo #9, Appendix A, where PCB-contaminated soils have been documented (ref 5, page 8; ref Appendix B, page 8).

Based on a review of Fish and Wildlife Service topographic wetland maps, there are approximately 1 acre of wetland within 0 to ¼ mile of the site, 3 acres within ¼ to ½ mile of the site and 5 acres within ½ to 1 mile of the site (ref 26, page 1). It had not been established whether these wetlands had been exposed to site wastes. However, based on the localized drainage patterns identified during the SSI off-site reconnaissance, it is not likely that these wetlands were exposed to site contaminants transported along the surface water pathway (ref Appendix B, page 10).

Nearby population threat values within a 1-mile radius of the site were estimated during the PA using the 1990 Census data for the City of Leonard and a house count within distance categories. There are an estimated 1,503 individuals living within 1 mile of the site (ref 5, page 5 and 8).

Applicable waste categories and potentially contaminated areas at the facility were previously identified in the PA dated May 1997 and during a review of State and Federal records, as previously noted. As a result, a total of sixteen (16) soil samples including two duplicates were collected during the SSI to substantiate releases of

remaining on-site contaminants to adjacent soils.

During the SSI, three (3) grab soil samples (SO-01, SO-02 and SO-03) were collected at depths 0"-6" from three unaffected upwind/upgradient locations ranging from 0.7 miles northwest to 2.2 miles north of the site to identify normal occurring background levels for contaminant attribution. The sample with the highest detected background level for the contaminant of concern was identified and used to determine if a release had occurred from the site. i.e., greater than 3X the highest background value.

Three (3) additional 5-part composite soil samples (SO-04, SO-05 and SO-06) were collected at depths 0"-6" from grassy areas located adjacent to the Leonard High School facility to assess contaminants that may have been transported along the surface water pathway or by air deposition from normal site activities.

A total of ten (10) other soil samples were collected from nearby off-site locations to assess contamination that may have been transported via surface water runoff or by air deposition. Four (4) grab soil samples (SO-07, SO-08, SO-09/10) were collected at depths 0"-6" from three low areas within drainage ditches located along Poplar and Hackberry Streets with SO-10 a duplicate of SO-09. One (1) grab soil sample (SO-11) was collected at depth 0"-6" from a low spot in the bar ditch located along the residential yard located south of the site and one (1) 5-part composite soil sample (SO-12) was collected at depths 0"-3" from the nearby day care center playground area. In addition, three (3) grab soil samples (SO-13 and SO-14/15) were collected at depths 6"-12" from two low areas along the south alleyway with SO-15 a duplicate of SO-14. Finally, one (1) grab soil sample (SO-16) was collected at depth 0"-6" along the fenceline of the adjacent residential yard located west of the site.

A summary of off-site soil sample location/rationale is provided in Table 5 and approximate sample locations are shown in Figure 5. Sample location photographs include Photos #5 thru #18 (see Appendix A). Applicable sample documentation was recorded in a field log book (see Appendix B).

All off-site soil samples were analyzed for CLP metals, cyanide, polychlorinated biphenyls (PCBs), and CLP organics (volatiles, semivolatiles and pesticides). Inorganic analysis was performed by AATS, 1700 West Albany, Suite C, Broken Arrow, Oklahoma, and organic analysis performed by Clayton Environmental Consultants, 22345 Roethal Drive, Novi, Michigan. Summaries of chemical constituents detected above release criteria are shown in Tables 6a and 6b. All additional analytical results not qualifying as release concentrations are shown in Appendix C, Samples SO-01 thru SO-16, ER-01, ER-02, FB-01 and FB-02.

TABLE 5. SOIL SAMPLE LOCATIONS

Sample Matrix	Sample ID #	Sample Location	Rationale
Soil Samples	SO-01	Unaffected soil sample collected upgradient/upwind from site sources.	Obtain a background sample for attribution of site contaminants.
	SO-02	Unaffected soil sample collected upgradient/upwind from site sources.	Obtain a background sample for attribution of site contaminants.
	SO-03	Unaffected soil sample collected upgradient/upwind from site sources.	Obtain a background sample for attribution of site contaminants.
	SO-04	5-part composite 0"-6" deep from the grassy area north of the high school.	Assess contamination that may have migrated to the high school.
	SO-05	5-part composite 0"-6" deep from the grassy area west of the high school.	Assess contamination that may have migrated to the high school.
	SO-06	5-part composite 0"-6" deep from the grassy area south of the high school.	Assess contamination that may have migrated to the high school.
	SO-07	Grab soil sample from the drainage ditch along Hackberry Street east of Poplar.	Assess contamination that may have migrated along the SW drainage pathway.
	SO-08	Grab soil sample from the drainage ditch along Poplar Street south of Hackberry	Assess contamination that may have migrated along the SW drainage pathway
	SO-09	Grab soil sample from the drainage ditch along Poplar Street north of Hackberry.	Assess contamination that may have migrated along SW drainage pathway.
	SO-10	Duplicate soil sample of SO-09.	Quality Assurance/Quality Control (QA/QC).
	SO-11	Grab soil sample from a low spot near residential yard located south of the site.	Assess contamination that may have migrated along the SW drainage pathway.
	SO-12	5-part composite 0"-3" deep from the backyard of a child day care center.	Assess contamination that may have migrated along the SW drainage pathway.
	SO-13	Grab soil sample 6"-12" deep from the public alleyway located south of site.	Assess contamination that may have migrated from the container storage area.
	SO-14	Grab soil sample 6"-12" deep from the public alleyway located south of site.	Assess contamination that may have migrated from the transformer storage area.
	SO-15	Duplicate soil sample of SO-14.	Quality Assurance/Quality Control (QA/QC).
	SO-16	Grab soil sample from a low spot in the residential yard located west of the site.	Assess contamination that may have migrated along the SW drainage pathway.
Source Samples	SO-17	Grab soil sample 6"-12" deep from the transformer off-load area north of shop.	Assess source contaminants that may have originated from spilled transformer oils.
	SO-18	Grab soil sample 6"-12" deep from a low area north of container storage area.	Assess source contaminants that may have originated from spilled transformer oils.
	SO-19	Grab soil sample 6"-12" deep in an area west of the SE transformer storage area.	Assess source contaminants that may have originated from leaking transformers.

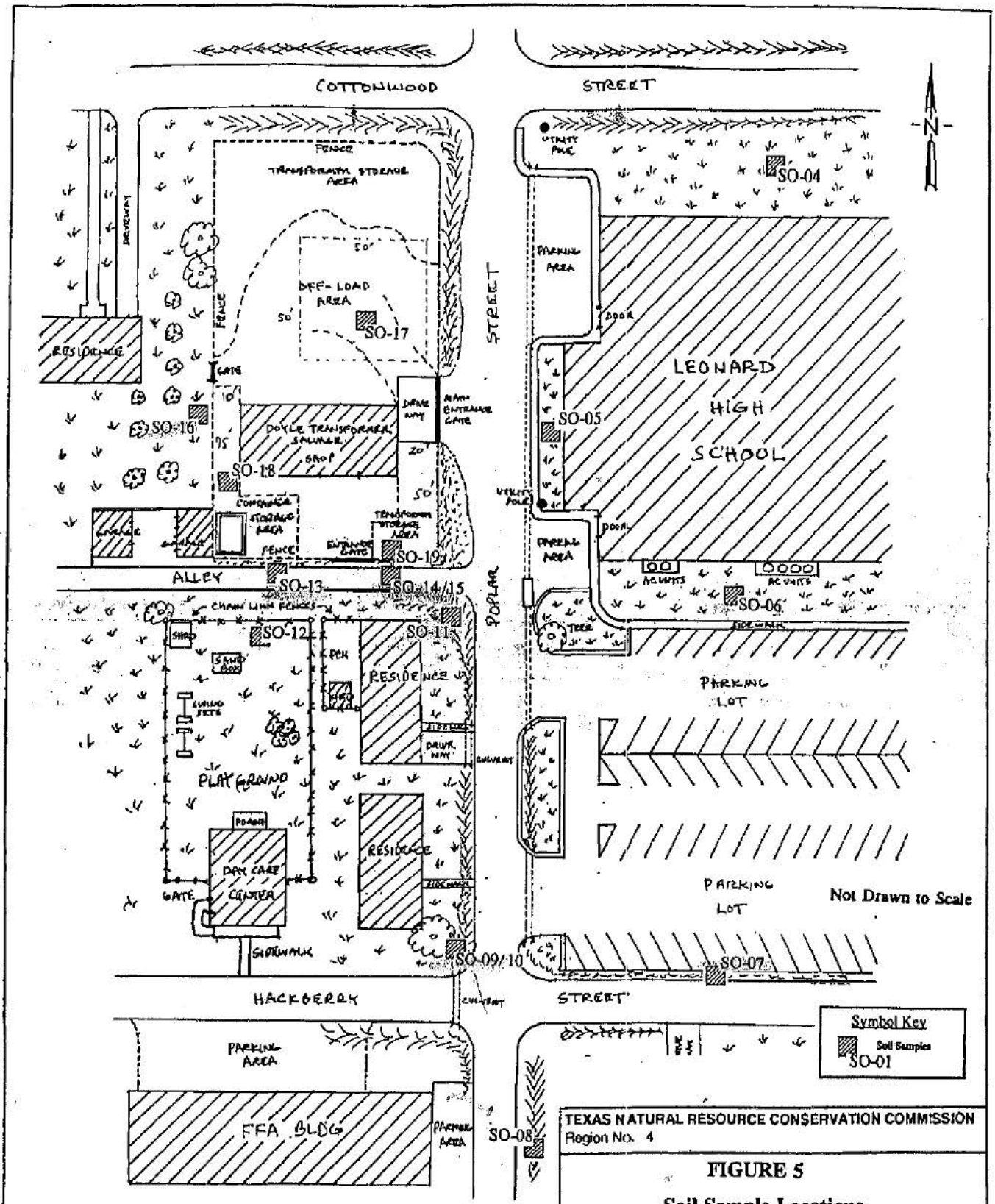

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FIGURE 5

Soil Sample Locations

Frank J. Doyle Transformer Site